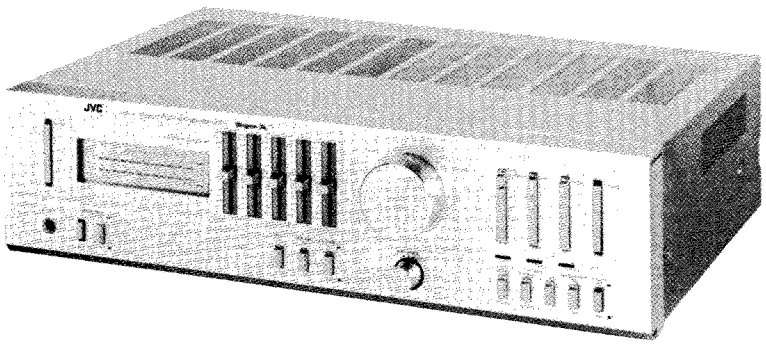
JVC

SERVICE MANUAL

MODEL A-X4

STEREO INTEGRATED AMPLIFIER



No. 2509
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Warning: When replacing the parts marked with ⚠, be sure to use the designated parts to ensure safety.

1. Specifications

Over all Specifications

Output Power (TUNER, AUX, TAPE →SP. OUT): 60 watts per channel min. RMS (both channels driven, into 8 Ω from 20 Hz to 20 kHz with no more than 0.005% THD)
63 watts per channel min. RMS (both channels driven, into 8 Ω at 1 kHz)

Total Harmonic Distortion (TUNER, AUX, TAPE →SP. OUT): 0.005% at rated output, from 20 Hz to 20 kHz, 8 Ω
0.001% at rated output 1 kHz, 8 Ω
(Measured by HP Audio Analyzer System)
0.02% at rated output, from 5 Hz to 50 kHz, 8 Ω

Intermodulation Distortion (TUNER, AUX, TAPE →SP. OUT): 0.004% at rated output, 8 Ω

Power Band Width (TUNER, AUX, TAPE →SP. OUT): 5 Hz – 60 kHz (IHF, both channels driven, 8 Ω, 0.02% THD)

Frequency Response (TUNER, AUX, TAPE →SP. OUT): DC – 100 kHz $^{+0}_{-3}$ dB

Damping Factor: 75 (1 kHz, 8 Ω)

Input Sensitivity/Impedance
- Phone (MM): 2.5 mV/47 kΩ
- Phone (MC): 200 μV/100 Ω
- TUNER, AUX, TAPE: 150 mV/47 kΩ

Signal-to-Noise Ratio
- Phono (MM): 84 dB (IHF, A net, short circuit) 83 dB (new IHF)
- Phono (MC): 67 dB (IHF, A net, short circuit) 76 dB (new IHF)
- TUNER, AUX, TAPE: 109 dB (IHF, A net, short circuit), 83 dB (new IHF)

Tone Controls (S.E.A.)
- Center Frequencies: 40, 250, 1 k, 5 k, 15 kHz
- Control Range: ±12 dB

Phono Equalizer Section (Phono→ REC. OUT)

Phono Overload
- Phono (MM): 220 mV at 1 kHz, 0.005% THD
- Phono (MC): 15 mV at 1 kHz, 0.005% THD

RIAA Phono Equalization
- (MM): ±0.3 dB (20 Hz – 20 kHz)
- (MC): ±0.5 dB (30 Hz – 20 kHz)

EQ Subsonic Filter: -6 dB/Oct. (18 Hz)

Total Harmonic Distortion
- Phono (MM): 0.005% at 10 V output, 20 Hz – 20 kHz
- Phono (MC): 0.02% at 10 V output, 30 Hz – 20 kHz)

Rec. Output/Impedance: 150 mV/810 Ω

Power Specifications: See page 21

Dimensions & Weight

	Dimensions			Weight	
	Hight	Width	Depth	Net	Gross
U.S.A. & Canada	4-3/4" (12.1 cm)	18-5/8" (47.4 cm)	13-5/8" (34.5 cm)	19.0 lbs. (8.6 kg)	22.1 lbs. (10 kg)
All Other Areas	4-3/4" (12.1 cm)	17-3/4" (45.0 cm)	13-5/8" (34.5 cm)	19.0 lbs. (8.6 kg)	22.1 lbs. (10 kg)

Design and specifications subject to change without notice.

2. Removal Procedures of Top Cover

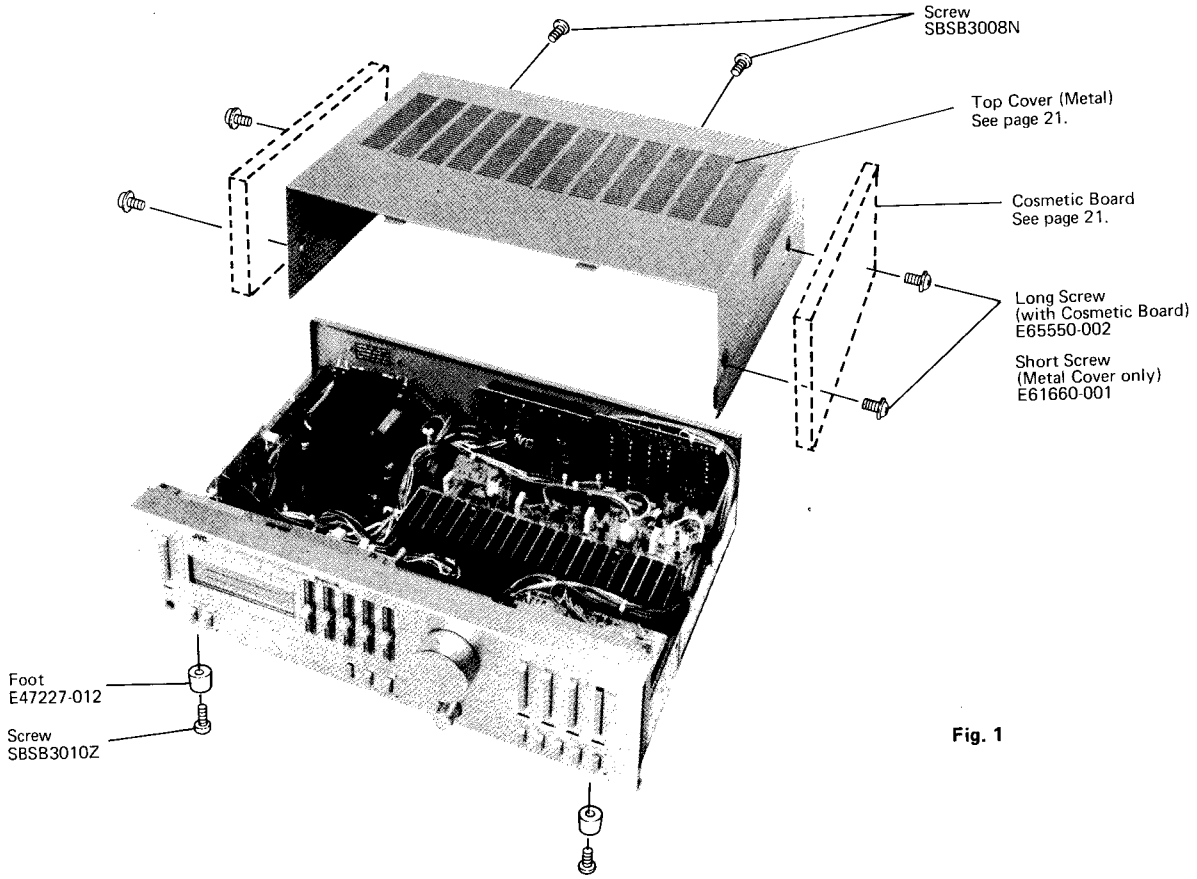


Fig. 1

3. Main Parts Location

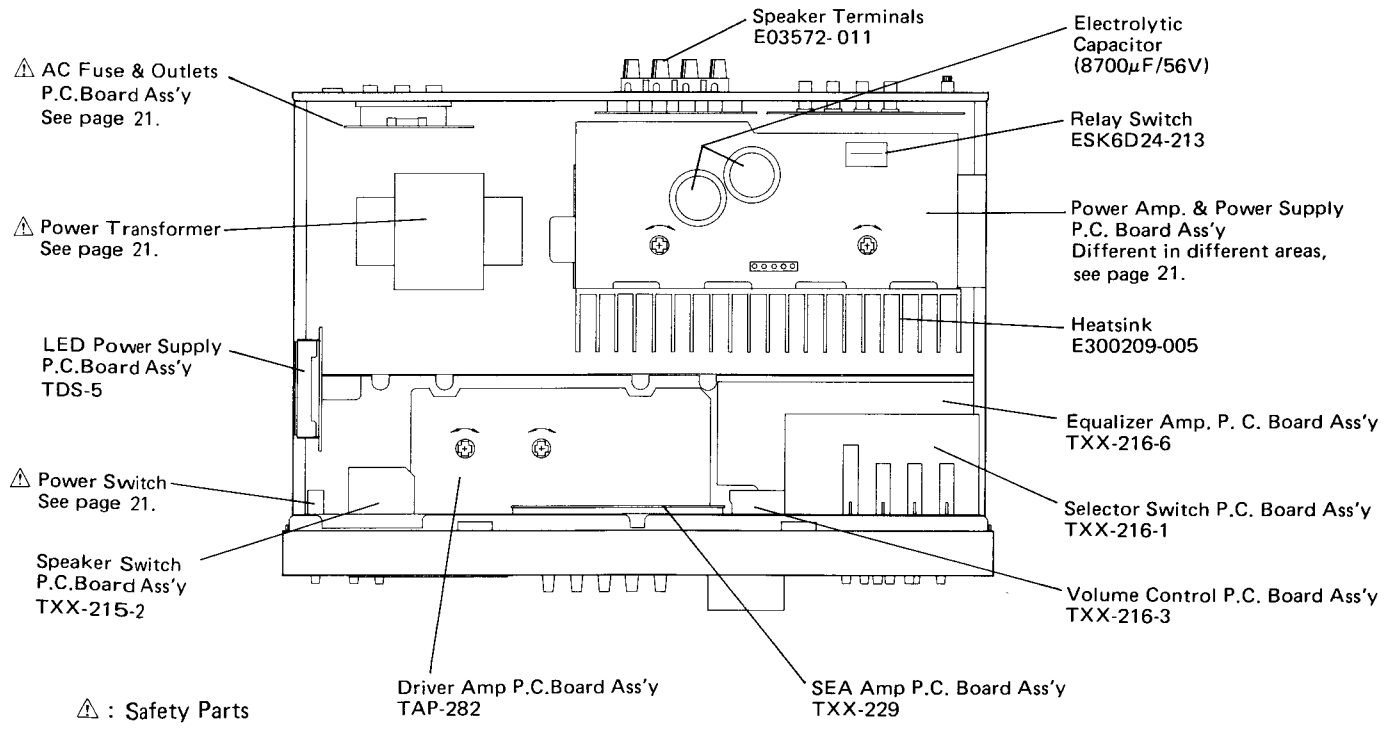


Fig. 2

4. Exploded Views and Part Numbers

4-(1) Front Panel

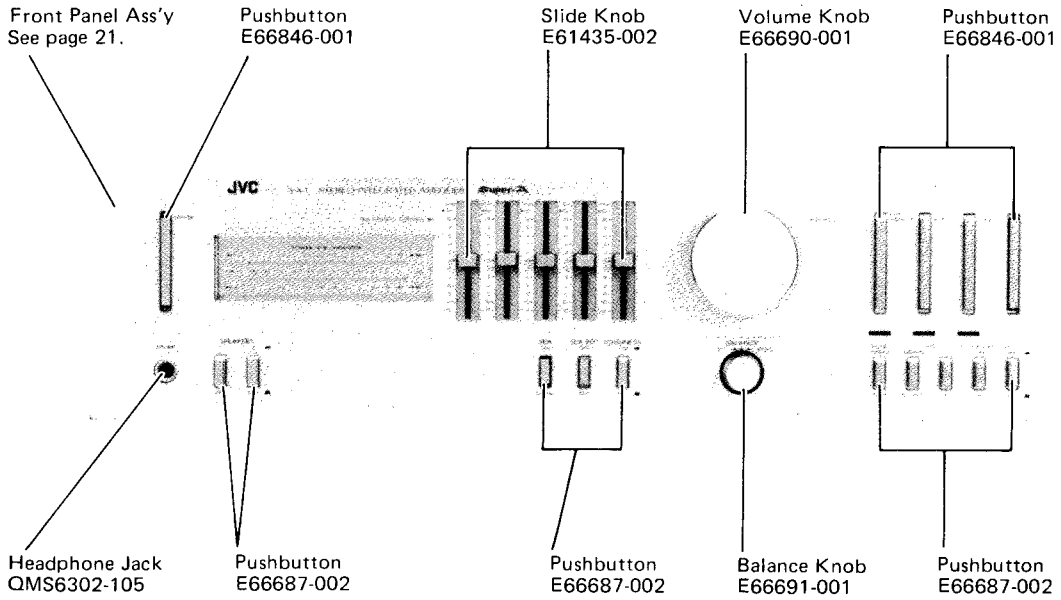


Fig. 3

4-(2) Rear Panel

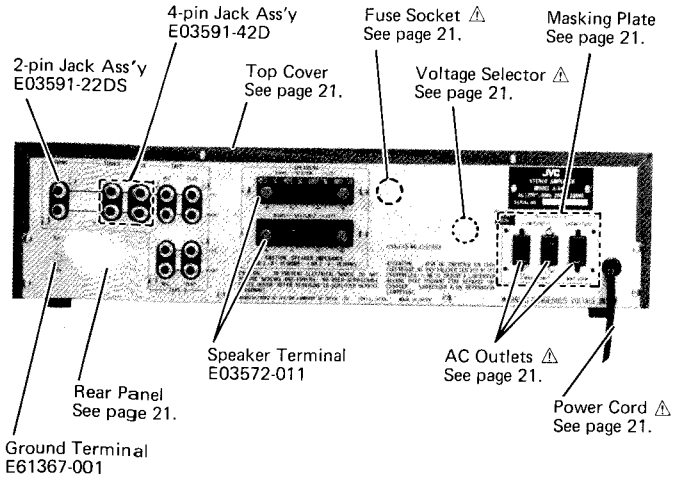


Fig. 4

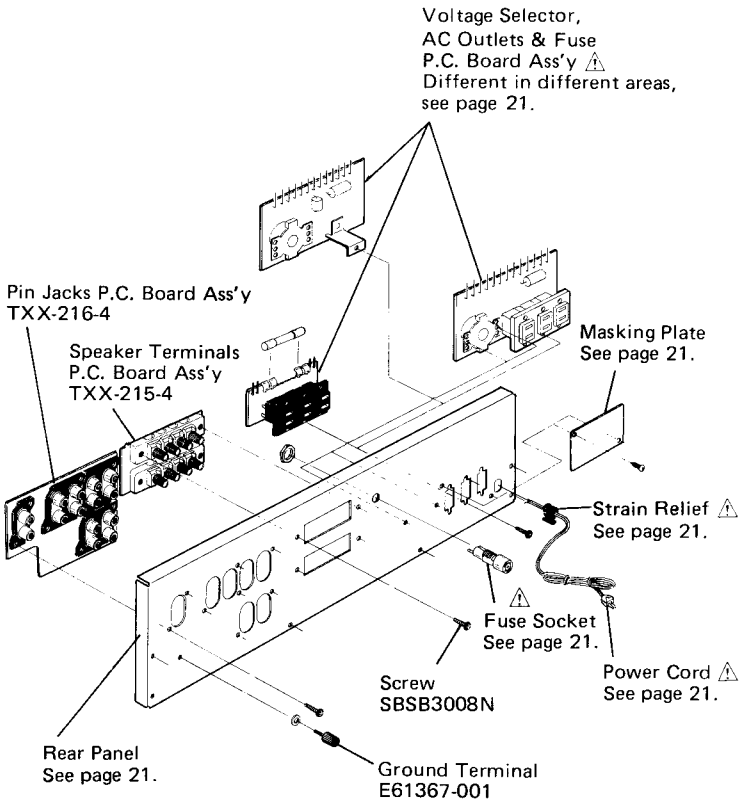


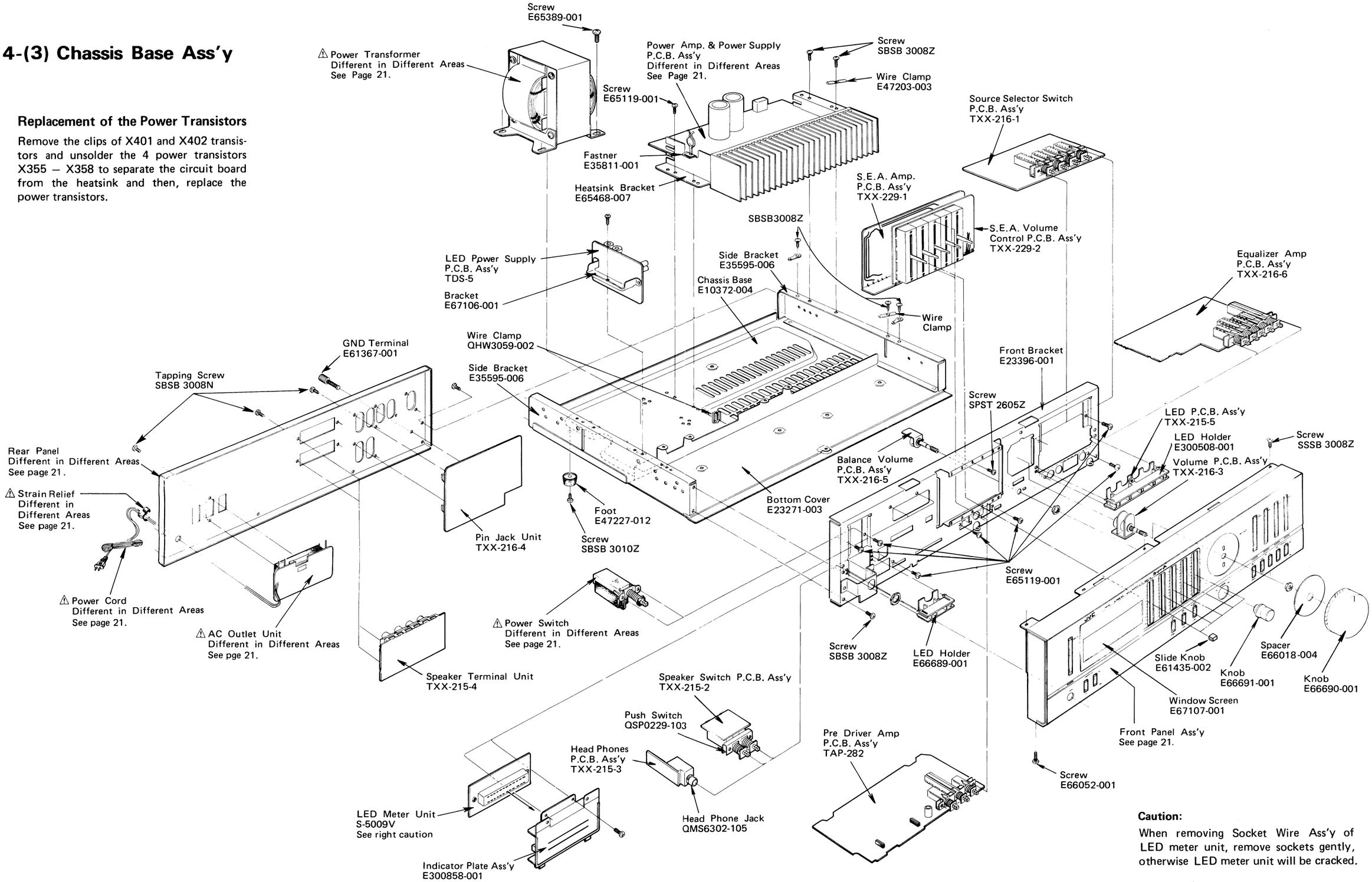
Fig. 5

⚠ : Safety Parts

4-(3) Chassis Base Ass'y

Replacement of the Power Transistors

Remove the clips of X401 and X402 transistors and unsolder the 4 power transistors X355 – X358 to separate the circuit board from the heatsink and then, replace the power transistors.



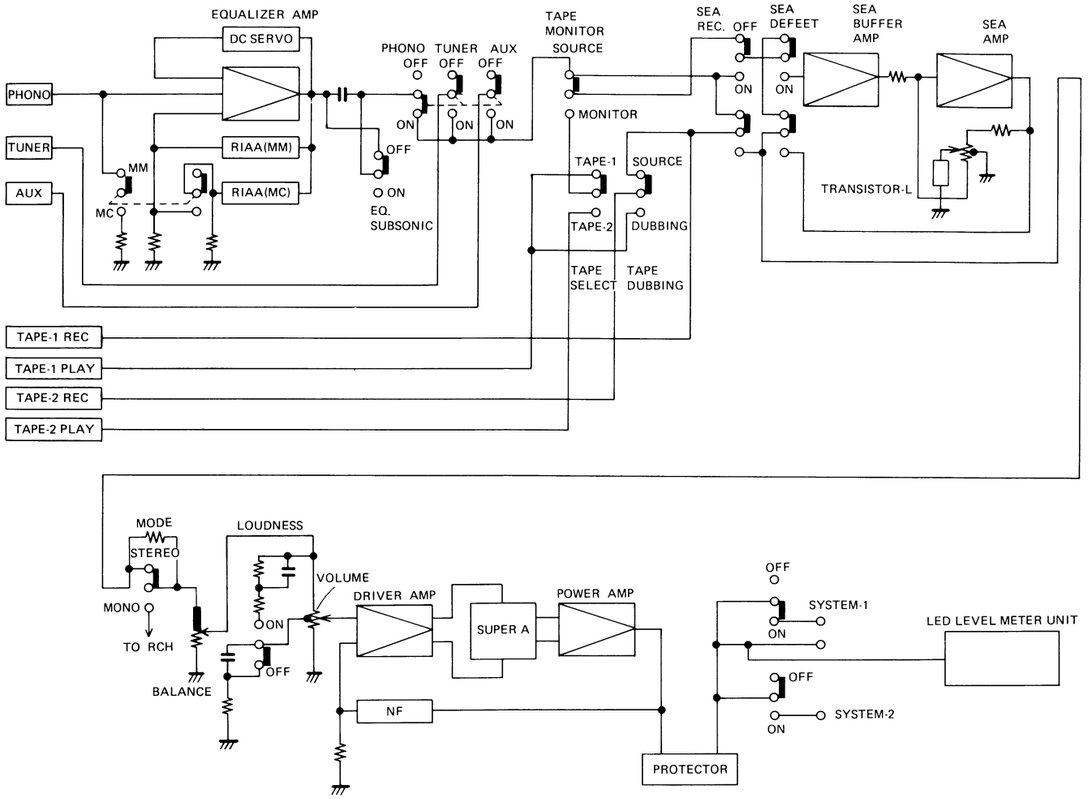
Caution:

When removing Socket Wire Ass'y of LED meter unit, remove sockets gently, otherwise LED meter unit will be cracked.

NOTE: ⚠ SAFETY PARTS

Fig. 6

5. Block Diagram



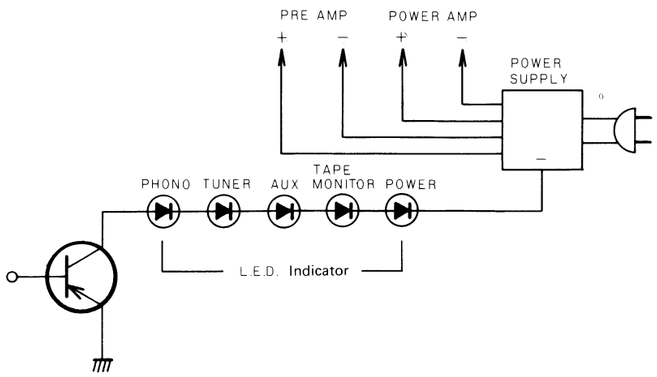


Fig. 7

6. New Technology

6-(1) New Development of IC in Super A Circuit

A newly developed IC has been employed in the heart of the super A bias circuit, thereby simplifying the circuit and improving its performance and reliability. Since the circuit operation remains entirely the same as the conventional circuit, please refer to page 7 "Power Amplifying Section of Super A System" of the A-X5 service manual (No. 2479).

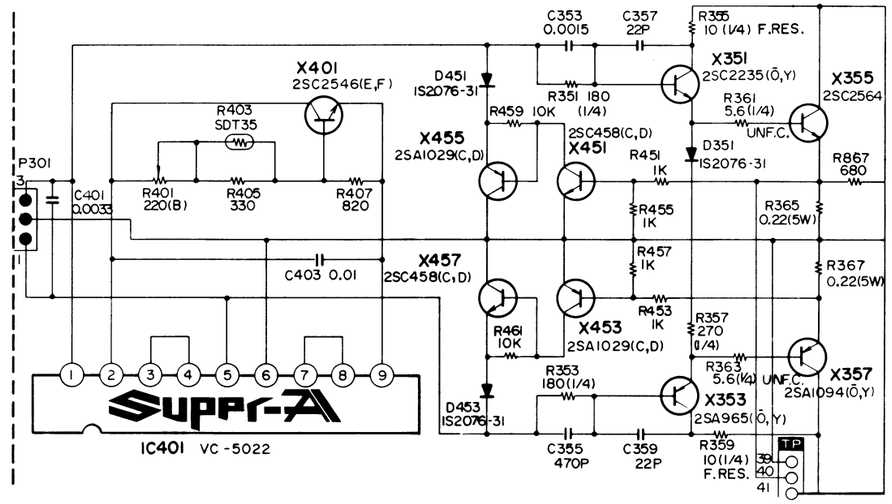


Fig. 8

6-(2) DC Servo Type Equalizer Circuit with EL FET

In order to achieve a 2-stage amplifier with simple circuit design, an EL-FET (2SK240) which was developed for the JVC EQ-7070 stereo phono equalizer is employed in the A-X4 providing a high performance DC Servo Equalizer circuit compatible with the both MM and MC cartridges.

1. Circuit Design
   In addition to the DC servo circuit, a 2-stage differential amplifier FET and a high S/N pre-amplifier IC are used to control the offset level to 0V.
2. High S/N design
   An EL FET is used as the first stage to form an ICL circuit and to make a high S/N ratio possible.
3. DC Servo Circuit
   Increased noise at a ultra low frequencies or offset point level deviation result if the equalizer circuit is designed as a DC amplifier because of the extremely high gain from ultra low frequencies to DC.
   The A-X4 incorporating a MC cartridge amplifier eliminates the problem with its DC servo circuit.
   The DC servo circuit operates to amplify the signals with the DC servo control circuit consisting of X703 and X705, acting as a low-pass filter circuit, it prevents noise at ultra low frequencies and offset point level deviation by controlling the voltage at pin no. 7 of IC701.

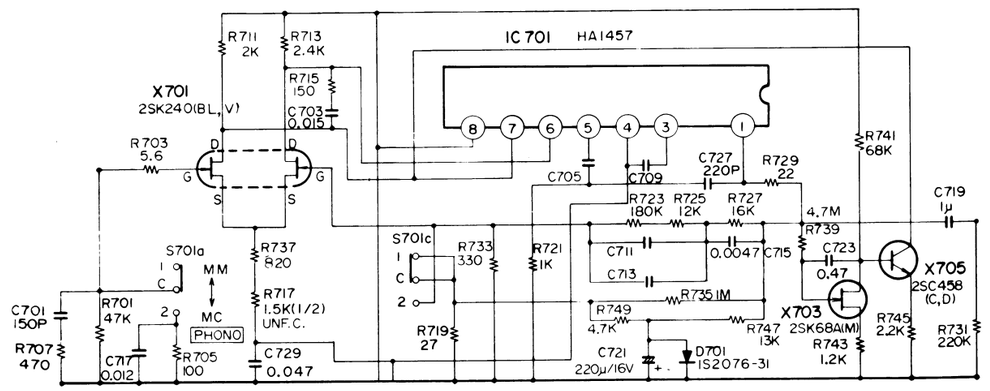
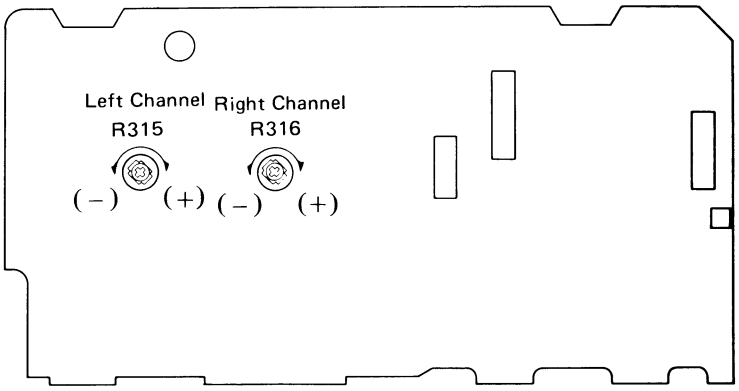
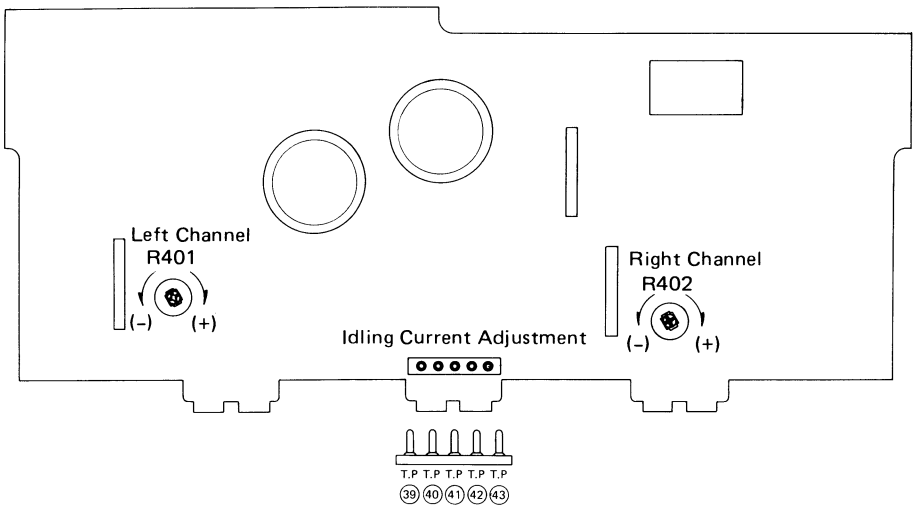


Fig. 9

7. Power Amplifier Adjustment Procedures



TAP-282 Driver Amp. P.C. Board Ass'y Fig. 10



TXX-215-1 Power Amp. & Power Supply P.C. Board Ass'y Fig. 11

7-(1) Center Voltage

1. Before turning on the power, set the semi-fixed resistors <R315 for L channel and R316 for R channel> of the drive amplifier circuit boards (TAP-282) to the center position.
2. Adjust the semi-fixed resistors (R315 and R316) so that the voltage at the following test points of the power amplifier circuit board (TXX-215-1) is within a range of ±10 mV or less 5 minutes after the power is turned on.
   L channel: Measure the voltage between test point (39) and test point (41) (ground).
   R channel: Measure the voltage between test point (43) and test point (41) (ground).
   The measurements can also be performed at the speaker terminals if the relay is operating normally.

7-(2) Idling Current

1. Before turning on the power, turn the semi-fixed resistors <R401 for L channel and R402 for R channel> of the power amplifier circuit board fully counterclockwise.
2. Adjust the semi-fixed resistors (R401 and R402) so that the voltage at the following test points of the power amplifier circuit board is within a range of 10 mV – 14 mV after the power is turned on.
   L channel: Measure the voltage between test point (40) (emitter of X355) and output at the test point (39).
   R channel: Measure the voltage between test point (42) (emitter of X356) and output at the test point (43).
3. Readjust resistors R401 and R402 about 5 minutes after the power is turned on (the heat sink temperature must be sufficiently high) so that the voltage at the test points becomes 12 mV.
   Confirm that the voltage does not vary when the heat sink temperature increases further.
   Note: Be sure to perform the measurement with the probes and cabinet of the measuring equipment separated from the grounding terminals of A-X4 or of other measuring equipment.

8. Printed Circuit Board Ass'y and Parts List

8-(1) TDS-5 LED Power Supply P.C. Board Ass'y

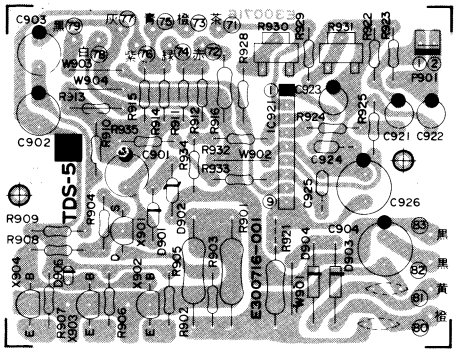


Fig. 12

Transistors

Item No.	Part Number	Rating		Description	
		Pc	fT		Maker
X901	2SK105(H)	0.25 W		F.E.T.	NEC
X902	2SC2235(O,Y)	0.9 W	120 MHz	Silicon	Toshiba
X903	2SC2235(O,Y)	"	"	"	"
X904	2SC2235(O,Y)	"	"	"	"

Integrated Circuit

Item No.	Part Number	Rating	Description	
		Pc		Maker
IC921	TA7318P(1)	700 mW	IC	Toshiba

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D901	1S2076-31		Silicon	Hitachi
D902	RD13EB3	13 V	Silicon (Zener)	NEC
D903	ERB12-02RKL1		Silicon	Fuji ⚠
D904	ERB12-02RKL1		"	" ⚠
D905	VD1220		Silicon (Varistor)	NEC

⚠ : Safety Parts

Capacitors

Item No.	Part Number	Rating		Description
C901	QET51ER-226	22 μF	25 V	Electrolytic
C902	QET51CR-107H	100 μF	16 V	"
C903	QET51CR-107H	"	"	"
C904	QET51JR-107H	"	63 V	"
C921	QET51HR-105	1 μF	50 V	"

Capacitors

Item No.	Part Number	Rating		Description
C922	QET51HR-105	1 μF	50 V	Electrolytic
C923	QET51HR-474	0.47 μF	"	"
C924	QFM31HK-332	0.022 μF	"	Mylar
C925	QFM31HK-332	"	"	"
C926	QET51ER-227H	220 μF	25V	Electrolytic

Resistors

Item No.	Part Number	Rating		Description
R901	QRG027J-471	470 Ω	2 W	Oxide Metal Film
R902	QRG027J-391	"	"	"
R903	QRD148J-332S	3.3 kΩ	1/4 W	Carbon
R904	QRD148J-820S	82 Ω	"	"
R905	QRD149J-130S	13 Ω	"	"
R906	QRD149J-130S	"	"	"
R907	QRD149J-130S	"	"	"
R908	QRD149J-471S	470 Ω	"	"
R909	QRD148J-104S	100 kΩ	"	"
R910	QRD148J-104S	"	"	"
R911	QRD148J-273S	27 kΩ	"	"
R912	QRD148J-183S	18 kΩ	"	"
R914	QRD148J-393S	39 kΩ	"	"
R915	QRD148J-222S	2.2 kΩ	"	"
R916	QRD129J-471	470 Ω	1/2 W	"
R921	QRG017J-222S	2.2 kΩ	1 W	Oxide Metal Film
R922	QRD148J-104S	100 kΩ	1/4 W	Carbon
R923	QRD148J-104S	"	"	"
R924	QRD148J-623S	62 kΩ	"	"
R925	QRD148J-623S	"	"	"
R928	QRD148J-132S	1.3 kΩ	"	"
R929	QRD148J-132S	"	"	"
R930	QVP9A0B-102	1 kΩ		Variable
R931	QVP9A0B-102	"		"

Others

Item No.	Part Number	Rating	Description
J803	EWS014-021		4Pin Socket Wire Ass'y (To TXX-215-1)
J903	EWS075-001		5Pin Socket Wire Ass'y (To TDS-5)
J904	EWS075-002		"
P901	QMV5005-002		2 Pin Plug Ass'y
	E300716-001		Cir. Board
	E67106-001		Bracket

8-(2) TXX-215 Power amp. Power Supply and Speakers P.C. Board Ass'y

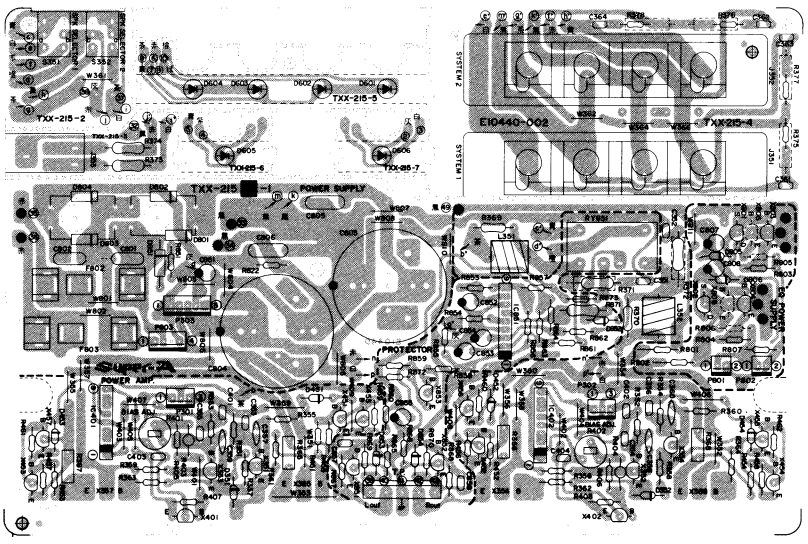


Fig. 13

⚠ : Safety Parts

Each Individual P.C. Board Location

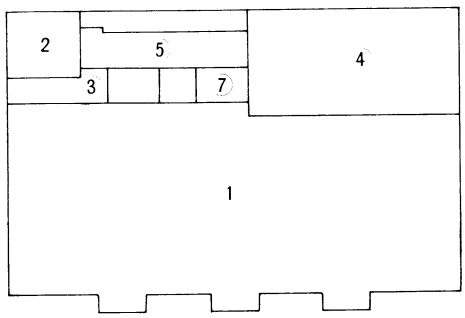


Fig. 14

① TXX-215-1 Power Amp. P.C.B. Ass'y
② TXX-215-2 Speaker Select Switch P.C.B. Ass'y
③ TXX-215-3 Head Phones P.C.B. Ass'y
④ TXX-215-4 Speaker Terminal P.C.B. Ass'y
⑤ TXX-215-5 L.E.D. P.C.B. Ass'y
⑦ TXX-215-7 〃

Note:
The specific symbols (赤, 黒, 白, . . . etc.) on a surface of above P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly of P.C. Board at the factory.

Transistors

Item No.	Part Number	Rating		Description	
		Pc	f_T		Maker
X351	2SC2235(O,Y)	0.9 W	120 MHz	Silicon	Toshiba
X352	2SC2235(O,Y)	〃	〃	〃	〃
X353	2SA965(O,Y)	〃	〃	〃	〃
X354	2SA965(O,Y)	〃	〃	〃	〃
X355	2SC2564(O,Y)	120 W	90 MHz	〃	〃
X356	2SC2564(O,Y)	〃	〃	〃	〃
X357	2SA1094(O,Y)	〃	70 MHz	〃	〃
X358	2SA1094(O,Y)	〃	〃	〃	Hitachi
X401	2SC2546(E,F)	0.4 W	90 MHz	〃	〃
X402	2SC2546(E,F)	〃	〃	〃	〃
X451	2SC458(C,D)	0.2 W	230 MHz	〃	〃
X452	2SC458(C,D)	〃	〃	〃	〃
X453	2SA1029(C,D)	〃	200 MHz	〃	〃
X454	2SA1029(C,D)	〃	〃	〃	〃
X455	2SA1029(C,D)	〃	〃	〃	〃
X456	2SA1029(C,D)	〃	〃	〃	〃
X457	2SC458(C,D)	〃	230 MHz	〃	〃
X458	2SC458(C,D)	〃	〃	〃	〃
X801	2SK105(F)	0.25 W		F.E.T.	NEC
X802	2SK105(F)	〃		〃	〃
X803	2SC2235(O,Y)	0.9 W	120 MHz	Silicon	Toshiba
X804	2SA965(O,Y)	〃	〃	〃	〃
X851	2SC1775AV(F)	0.2 W	200 MHz	〃	Hitachi
X852	2SC1775AV(F)	〃	〃	〃	〃
X853	2SA872AV(E)	0.3 W	120 MHz	〃	〃

Integrated Circuits

Item No.	Part Number	Rating	Description	
				Maker
IC401	VC5022		I.C.	Toyodengu
IC402	VC5022		〃	〃
IC851	TA7317P	0.5 W	〃	Toshiba

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D351	1S2076-31		Silicon	Hitachi
D352	1S2076-31		〃	〃
D451	1S2076-31		〃	〃
D601	SG203TA		L.E.D.	NEC
D602	SG203TA		〃	〃

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D603	SG203TA		L.E.D.	NEC
D604	SY403TA		〃	〃
D605	SG203TA		〃	〃
D606	SY403TA		〃	〃
D801	30D2FA-S		Silicon	Nihon Inter.
D802	30D2FA-S		〃	〃
D803	30D2FA-S		〃	〃
D804	30D2FA-S		〃	〃
D805	RD30EB3		Silicon(Zener)	NEC
D806	RD30EB3		〃	〃
D851	ERB12-02RKL1		Silicon	Fuji
D852	1S2076-31		〃	Hitachi
D853	1S2076-31		〃	〃

Coil & Transformers

Item No.	Part Number	Rating	Description
L351	E04059-1R0	1 μH	Choke Coil
L352	E04059-1R0	〃	〃

Capacitors

Item No.	Part Number	Rating		Description
C351	QFM31HK-223	0.022 μF	50 V	Mylar
C352	QFM31HK-223	〃	〃	〃
C353	QFM31HK-152	1500 pF	〃	〃
C354	QFM31HK-152	〃	〃	〃
C355	QCS21HJ-471	470 pF	〃	Ceramic
C356	QCS21HJ-471	〃	〃	〃
C357	QCS21HJ-220	22 pF	〃	〃
C358	QCS21HJ-220	〃	〃	〃
C359	QCS21HJ-220	〃	〃	〃
C360	QCS21HJ-220	〃	〃	〃
C361	QFM31HK-103	0.01 μF	〃	Mylar
C362	QFM31HK-103	〃	〃	〃
C363	QFM31HK-103	〃	〃	〃
C364	QFM31HK-103	〃	〃	〃
C401	QFM31HK-332	3300 pF	〃	〃
C402	QFM31HK-332	〃	〃	〃
C403	QFM31HK-103	0.01 μF	〃	〃
C404	QFM31HK-103	〃	〃	〃
C801	QCE22HP-103	〃	500 V	Ceramic (U.S.A. & Canada)
C801	QFZ0074-104	0.1 μF	250 V	Metallized Mylar (Except U.S.A. & Canada)

Capacitors

Item No.	Part Number	Rating		Description
C802	QCE22HP-103	0.01 μF	500 V	
C803	EEW5601-878	8700 μF	56 V	Electrolytic
C804	EEW5601-878	"	"	"
C807	QET51HR-106H	10 μF	50 V	Tantalum Electrolytic
C808	QET51HR-106H	"	"	"
C851	QET51HR-105H	1 μF	"	"
C852	QET51CR-226H	22 μF	16 V	"
C853	QET51AR-476H	47 μF	10 V	"
C854	QET51AR-476H	"	"	"
C855	QET51HR-106H	10 μF	50 V	"
C857	QFM31HK-103	0.01 μF	"	Mylar
C858	QFM31HK-103	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R351	QRZ0052-181	180 Ω	1/4 W	Carbon (Fuse) ⚠
R352	QRZ0052-181	"	"	" ⚠
R353	QRZ0052-181	"	"	" ⚠
R354	QRZ0052-181	"	"	" ⚠
R355	QRZ0052-100	10 Ω	"	" ⚠
R356	QRZ0052-100	"	"	" ⚠
R357	QRZ0052-271	270 Ω	1/4 W	" ⚠
R358	QRZ0052-271	"	"	" ⚠
R359	QRZ0052-100	10 Ω	"	" ⚠
R360	QRZ0052-100	"	"	" ⚠
R361	QRD149J-5R6S	5.6 Ω	"	Carbon ⚠
R362	QRD149J-5R6S	"	"	" ⚠
R363	QRD149J-5R6S	"	"	" ⚠
R364	QRD149J-5R6S	"	"	" ⚠
R365	QRM054K-R22	0.22 Ω	5 W	Metal Plate ⚠
R366	QRM054K-R22	"	"	" ⚠
R367	QRM054K-R22	"	"	" ⚠
R368	QRM054K-R22	"	"	" ⚠
R369	QRD129J-4R7	4.7 Ω	1/2 W	Carbon ⚠
R370	QRD129J-4R7	"	"	" ⚠
R371	See Page 21	10 Ω	1 W	⚠
R372	See Page 21	"	"	⚠
R373	QRG017J-331S	330 Ω	"	Ox. Metal Film ⚠
R374	QRG017J-331S	"	"	" ⚠
R375	See Page 21	10 Ω	1/4 W	⚠
R376	See Page 21	"	"	⚠
R377	See Page 21	"	"	⚠
R378	See Page 21	"	"	⚠
R401	QVP4A0B-221	220 Ω	0.15 W	Variable
R402	QVP4A0B-221	"	"	"
R403	SDT35	350 Ω	1 W	Thermistor
R404	SDT35	"	"	"
R405	QRD141J-331SY	330 Ω	1/4 W	Carbon
R406	QRD141J-331SY	"	"	"
R407	QRD141J-821SY	820 Ω	"	"
R408	QRD141J-821SY	"	"	"
R451	QRD141J-102SY	1 kΩ	"	"
R452	QRD141J-102SY	"	"	"
R453	QRD141J-102SY	"	"	"
R454	QRD141J-102SY	"	"	"
R455	QRD141J-911SY	910 Ω	"	"
R456	QRD141J-911SY	"	"	"
R457	QRD141J-911SY	"	"	"
R458	QRD141J-911SY	"	"	"
R459	QRD141J-103SY	10 kΩ	"	"
R460	QRD141J-103SY	"	"	"
R461	QRD141J-103SY	"	"	"
R462	QRD141J-103SY	"	"	"
R801	QRZ0052-820	82 Ω	"	Carbon (Fuse) ⚠
R802	QRZ0052-820	"	"	" ⚠

Resistors

Item No.	Part Number	Rating		Description
R803	QRD149J-560S	56 Ω	1/4W	Carbon ⚠
R804	QRD149J-560S	"	"	" ⚠
R807	QRD141J-224SY	220 kΩ	"	"
R822	QRD141J-223SY	22 kΩ	"	"
R851	QRD149J-331S	330 Ω	"	" ⚠
R853	QRD141J-224SY	220 kΩ	"	"
R854	QRD141J-103SY	10 kΩ	"	"
R855	QRD141J-204SY	200 kΩ	"	"
R856	QRD141J-683SY	68 kΩ	"	"
R857	QRD141J-223SY	22 kΩ	"	"
R858	QRD141J-473SY	47 kΩ	"	"
R859	QRD141J-103SY	10 kΩ	"	"
R860	QRD149J-270S	27 Ω	"	" ⚠
R861	QRD141J-563SY	56 kΩ	"	"
R862	QRD141J-563SY	"	"	"
R863	QRD141J-273SY	27 kΩ	"	"
R864	QRD141J-273SY	"	"	"
R865	QRD141J-223SY	22 kΩ	"	"
R866	QRD141J-223SY	"	"	"
R867	QRD141J-681SY	680 Ω	"	"
R868	QRD141J-681SY	"	"	"
R869	QRD141J-562SY	5.6 kΩ	"	"
R870	QRD141J-562SY	"	"	"
R871	QRG017J-102S	1 kΩ	1 W	Ox. Metal Film ⚠
R872	QRD141J-332SY	3.3 kΩ	1/4 W	Carbon

Others

Item No.	Part Number	Rating	Description
J351	E03572-011		Speaker Terminal
J352	E03572-011		"
J353	QMS6302-105		Head Phone Jack Ass'y
J602	EWS014-015		4P Socket Wire Ass'y (To TXX-216-2)
J604	EWS015-013		5P Socket Wire Ass'y (To TXX-216-1)
J605	EWS012-018		2P Socket Wire Ass'y
J901	EWS012-010		" " (To TDS-5)
P301	QMV5005-003		3P Plug Ass'y
P302	QMV5005-003		" "
P303	QMV5005-005		5P "
P801	QMV5005-002		2P "
P802	QMV5005-002		" "
P803	QMV5005-004		4P "
RY851	ESK6D24-213		Relay Switch
	See Page 21		Fuse Clip
	See Page 21		Fuse Label
	E300209-005		Heat Sink
	E03628-5UD		5P Plug Ass'y (Test Point)
	E300508-001		4 L.E.D.Holder
	E43727-002		Tab
	E65468-007		Heat Sink Bracket
	E67105-001		Clip (X401, 402)
	E66689-001		1 L.E.D. Holder
	LPSP3014NS		Screw
	QSP0229-103		Push Switch (Speaker)
	SBSB3008Z		Tapping Screw
	E66998-002		IC Cap

⚠ : Safety Parts

8-(3) TXX-229 SEA (Sound Effect Amplifier) P.C. Board Ass'y

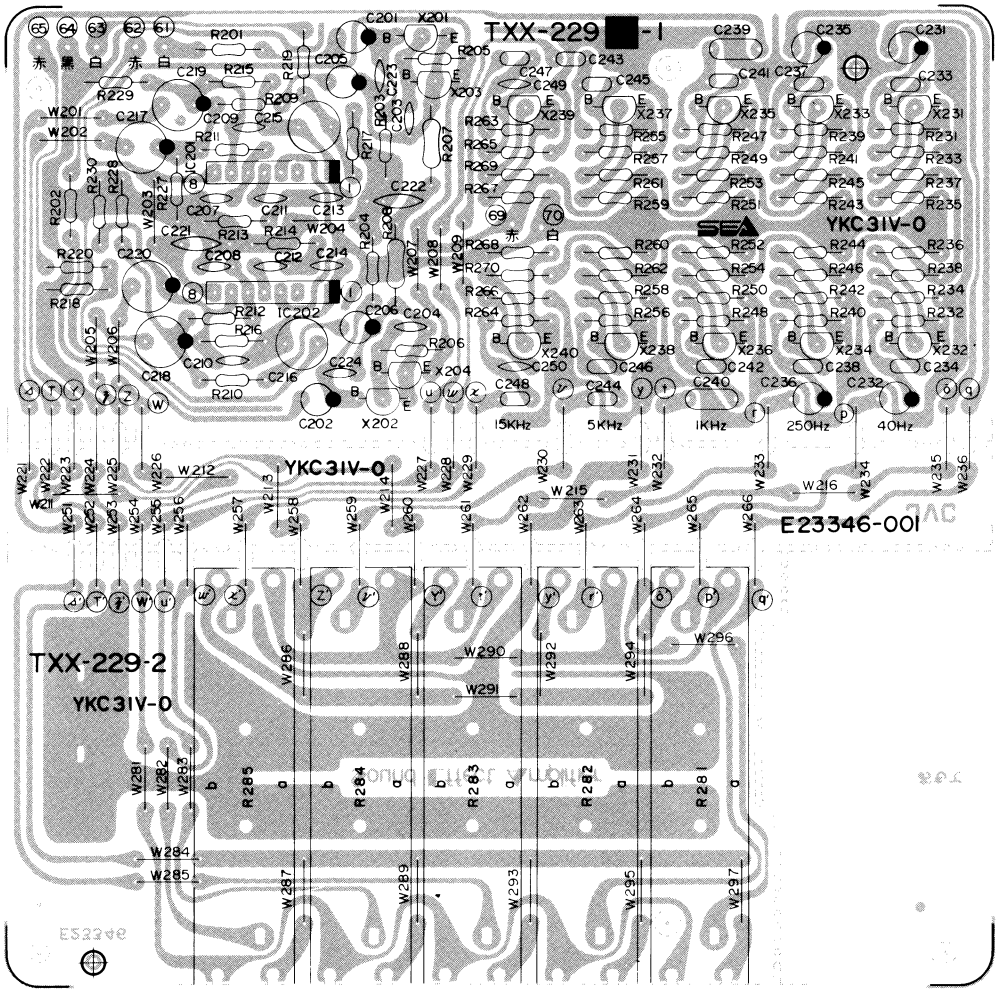


Fig. 15

Each Individual P.C. Board Location

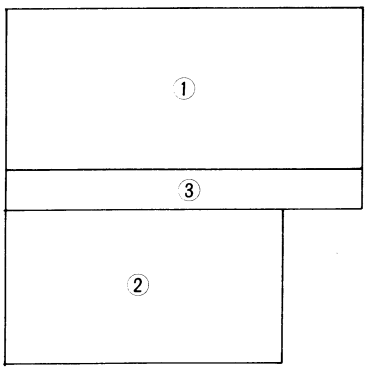


Fig. 16

① TXX-229-1 : SEA Amp. P.C. Board Ass'y
② TTX-229-2 : SEA Volume Control P.C. Board Ass'y
③ TXX-229 : Connector P.C. Board Ass'y

Transistors

Item No.	Part Number	Rating		Description	
		Pc	fT		Maker
X201	2SC1775AV(E,F)	0.2 W	200 MHz	Silicon	Hitachi
X202	2SC1775AV(E,F)	"	"	"	"
X203	2SA1084(E)	0.4 W	120 MHz	"	"
X204	2SA1084(E)	"	"	"	"
X231	2SC1775AV(E,F)	0.2 W	200 MHz	"	"
X232	2SC1775AV(E,F)	"	"	"	"
X233	2SC1775AV(E,F)	"	"	"	"
X234	2SC1775AV(E,F)	"	"	"	"
X235	2SC1775AV(E,F)	"	"	"	"
X236	2SC1775AV(E,F)	"	"	"	"
X237	2SC1775AV(E,F)	"	"	"	"
X238	2SC1775AV(E,F)	"	"	"	"
X239	2SC1775AV(E,F)	"	"	"	"
X240	2SC1775AV(E,F)	"	"	"	"

Integrated Circuits

Item No.	Part Number	Rating		Description	
		Pc			Maker
IC201	HA1457	0.5 W	I.C.		Hitachi
IC202	HA1457	"	"		"

Capacitors

Item No.	Part Number	Rating		Description
C201	QEB51EM-225	2.2 μF	25 V	Low Leak Current Electrolytic
C202	QEB51EM-225	"	"	"
C203	QCS21HJ-120	12 pF	50 V	Ceramic
C204	QCS21HJ-120	"	"	"
C205	QEB51EM-225	2.2 μF	25 V	Low Leak Current Electrolytic
C206	QEB51EM-225	"	"	"
C207	QCS21HJ-151	150 pF	50 V	Ceramic
C208	QCS21HJ-151	"	"	"
C209	QCS21HJ-220	22 pF	"	"
C210	QCS21HJ-220	"	"	"
C211	QCS21HJ-470	47 pF	"	"
C212	QCS21HJ-470	"	"	"
C213	QCS21HJ-271	270 pF	"	"
C214	QCS21HJ-271	"	"	"
C215	QEZ0046-475	4.7 μF	50 V	Non Polar Electrolytic
C217	QET51ER-476	47 μF	25 V	Electrolytic
C218	QET51ER-476	"	"	"
C219	QET51ER-476	"	"	"
C220	QET51ER-476	"	"	"
C221	QCF21HP-473	0.047 μF	50 V	Ceramic
C222	QCF21HP-473	"	"	"
C223	QCS21HJ-101	100 pF	"	"
C224	QCS21HJ-101	"	"	"
C231	QET51HR-475	4.7 μF	"	Electrolytic
C232	QET51HR-475	"	"	"
C233	QFM31HJ-223	0.022 μF	"	Mylar
C234	QFM31HJ-223	"	"	"
C235	QET51HR-474	0.47 μF	"	Electrolytic
C236	QET51HR-474	"	"	"
C237	QFM31HJ-822	8200 pF	"	Mylar
C238	QFM31HJ-822	"	"	"
C239	QFM31HJ-124	0.12 μF	"	"
C240	QFM31HJ-124	"	"	"
C241	QFM31HJ-332	3300 pF	"	"
C242	QFM31HJ-332	"	"	"
C243	QFM31HJ-273	0.027 μF	"	"
C244	QFM31HJ-273	"	"	"
C245	QFM31HJ-102	1000 pF	"	"
C246	QFM31HJ-102	"	"	"
C247	QFM31HJ-562	5600 pF	"	"
C248	QFM31HJ-562	"	"	"
C249	QCS21HJ-681	680 pF	"	Ceramic
C250	QCS21HJ-681	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R201	QRD141J-471SY	470 Ω	1/4 W	Carbon
R202	QRD141J-471SY	"	"	"
R203	QRD141J-104SY	100 kΩ	"	"
R204	QRD141J-104SY	"	"	"
R205	QRD141J-472SY	4.7 kΩ	"	"
R206	QRD141J-472SY	"	"	"
R207	QRD129J-332	3.3 kΩ	1/2 W	"
R208	QRD129J-332	"	"	"
R209	QRD141J-472SY	4.7 kΩ	1/4 W	"
R210	QRD141J-472SY	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R211	QRD141J-100SY	10 Ω	1/4 W	Carbon
R212	QRD141J-100SY	"	"	"
R213	QRD141J-182SY	1.8 kΩ	"	"
R214	QRD141J-182SY	"	"	"
R215	QRD141J-472SY	4.7 kΩ	"	"
R216	QRD141J-472SY	4.7 kΩ	1/4 W	Carbon
R217	QRD141J-224SY	220 kΩ	"	"
R218	QRD141J-224SY	"	"	"
R219	QRD141J-331SY	330 Ω	"	"
R220	QRD141J-331SY	"	"	"
R227	QRD141J-224SY	220 kΩ	"	"
R228	QRD141J-224SY	"	"	"
R229	QRD141J-224SY	"	"	"
R230	QRD141J-224SY	"	"	"
R231	QRD141J-122SY	1.2 kΩ	"	"
R232	QRD141J-122SY	"	"	"
R233	QRD141J-134SY	130 kΩ	"	"
R234	QRD141J-134SY	"	"	"
R235	QRD141J-682SY	6.8 kΩ	"	"
R236	QRD141J-682SY	"	"	"
R237	QRD141J-391SY	390 Ω	"	"
R238	QRD141J-391SY	"	"	"
R239	QRD141J-122SY	1.2 kΩ	"	"
R240	QRD141J-122SY	"	"	"
R241	QRD141J-913SY	91 kΩ	"	"
R242	QRD141J-913SY	"	"	"
R243	QRD141J-682SY	6.8 kΩ	"	"
R244	QRD141J-682SY	"	"	"
R245	QRD141J-391SY	390 Ω	"	"
R246	QRD141J-391SY	"	"	"
R247	QRD141J-122SY	1.2 kΩ	"	"
R248	QRD141J-122SY	"	"	"
R249	QRD141J-513SY	51 kΩ	"	"
R250	QRD141J-513SY	"	"	"
R251	QRD141J-682SY	6.8 kΩ	"	"
R252	QRD141J-682SY	"	"	"
R253	QRD141J-391SY	390 Ω	"	"
R254	QRD141J-391SY	"	"	"
R255	QRD141J-122SY	1.2 kΩ	"	"
R256	QRD141J-122SY	"	"	"
R257	QRD141J-333SY	33 kΩ	"	"
R258	QRD141J-333SY	"	"	"
R259	QRD141J-682SY	6.8 kΩ	"	"
R260	QRD141J-682SY	"	"	"
R261	QRD141J-391SY	390 Ω	"	"
R262	QRD141J-391SY	"	"	"
R263	QRD141J-122SY	1.2 kΩ	"	"
R264	QRD141J-122SY	"	"	"
R265	QRD141J-243SY	24 kΩ	"	"
R266	QRD141J-243SY	"	"	"
R267	QRD141J-682SY	6.8 kΩ	"	"
R268	QRD141J-682SY	"	"	"
R269	QRD141J-391SY	390 Ω	"	"
R270	QRD141J-391SY	"	"	"
R281	QVZ5010-002	250 kΩ	1/8 W	Variable(40 Hz)
R282	QVZ5010-002	"	"	" (250 Hz)
R283	QVZ5010-002	"	"	" (1 kHz)
R284	QVZ5010-002	"	"	" (5 kHz)
R285	QVZ5010-002	"	"	" (15 kHz)

Other

Item No.	Part Number	Rating	Description
J201	EWS019-007		9 pin Socket Wire Ass'y

8-(4) TXX-216 Equalizer Amp. and Source Selector P.C.Board Ass'y

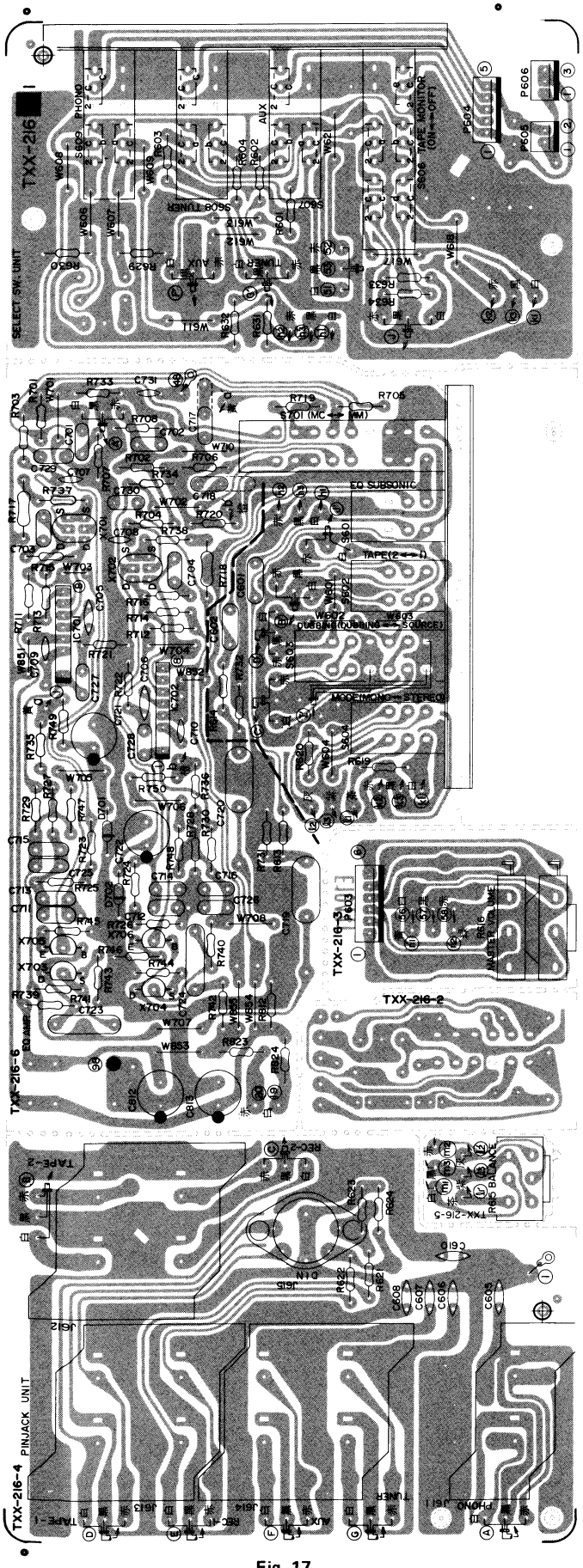


Fig. 17

Each Individual P.C. Board Location

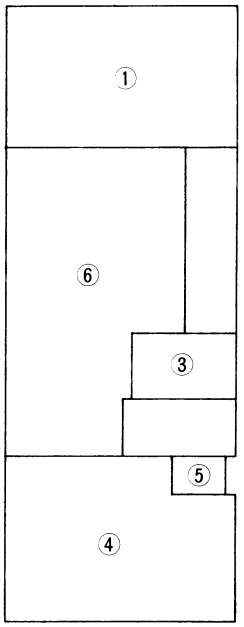


Fig. 18

① TXX-216-1 Select Switch P.C.B. Ass'y
③ TXX-216-3 Volume P.C.B. Ass'y
④ TXX-216-4 Pin Jack P.C.B. Ass'y
⑤ TXX-216-5 Balance Control P.C.B. Ass'y
⑥ TXX-216-6 EQ Amp. & Switch P.C.B. Ass'y

Note:
The specific symbols (赤, 黒, 白,. . . etc.) on a surface of above P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly of P.C. Board at the factory.

Transistors

Item No.	Part Number	Rating		Description	
		Pc	f_T		Maker
X701	2SK240(BL,V)			F.E.T.	Toshiba
X702	2SK240(BL,V)			"	"
X703	2SK68A(M)	0.4 W	90 MHz	"	NEC
X704	2SK68A(M)	"	"	"	"
X705	2SC458(C,D)	0.2 W	230 MHz	Silicon	Hitachi
X706	2SC458(C,D)	"	"	"	"

Integrated Circuits

Item No.	Part Number	Rating	Description	
		Pc		Maker
IC701	HA1457	0.5 W	I.C.	Hitachi
IC702	HA1457	"	"	"

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D701	1S2076-31		Silicon	Hitachi
D702	1S2076-31		"	"

Capacitors

Item No.	Part Number	Rating		Description
C601	QFM31HK-224	0.22 μF	50 V	Mylar
C602	QFM31HK-224	"	"	"
C605	QCF21HP-473	0.022 μF	"	Ceramic
C606	QCF21HP-103A	"	"	"
C607	QCF21HP-103A	"	"	"
C608	QCF21HP-103A	"	"	"
C609	QET51AR-476	47 μF	10 V	Electrolytic
C610	QCF21HP-103A	0.022 μF	50 V	Ceramic
C701	QCS21HJ-151	150 pF	"	"
C702	QCS21HJ-151	"	"	"
C703	QFM31HK-153	0.015 μF	"	Mylar
C704	QFM31HK-153	"	"	"
C705	QCS21HJ-680	68 pF	"	Ceramic
C706	QCS21HJ-680	"	"	"
C707	QCS21HJ-270	27 pF	"	"
C708	QCS21HJ-270	27 pF	"	"
C709	QCS21HJ-560	56 pF	"	"
C710	QCS21HJ-560	"	"	"
C711	QFM31HJ-822	8200 pF	"	Mylar
C712	QFM31HJ-822	"	"	"
C713	QFM31HJ-822	"	"	"
C714	QFM31HJ-822	"	"	"
C715	QFM31HJ-472	4700 pF	"	"
C716	QFM31HJ-472	"	"	"
C717	QFM31HK-123	0.012 μF	"	"
C718	QFM31HK-123	"	"	"
C719	EFZ0080-105	1 μF	200 V	Film
C720	EFZ0080-105	"	"	"
C721	QET51CR-227H	220 μF	16 V	Tantalum Electrolytic
C722	QET51CR-227H	"	"	"
C723	QFH42AK-474	0.47 μF	100 V	Metallized Mylar
C724	QFH42AK-474	"	"	"
C727	QCS21HJ-221	220 pF	50 V	Ceramic
C728	QCS21HJ-221	"	"	"
C729	QFM31HK-473	0.047 μF	"	Mylar
C730	QFM31HK-473	"	"	"
C731	QCF21HP-473	"	"	Ceramic
C812	QET51ER-227E	220 μF	25 V	Electrolytic
C813	QET51ER-227E	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R601	QRD141J-331SY	330 Ω	1/4 W	Carbon
R602	QRD141J-331SY	"	"	"
R603	QRD141J-331SY	"	"	"
R604	QRD141J-331SY	"	"	"
R605	QRD141J-331SY	"	"	"
R606	QRD141J-331SY	"	"	"
R607	QRD141J-823SY	82 kΩ	"	"
R608	QRD141J-823SY	"	"	"
R609	QRD141J-103SY	10 kΩ	"	"
R610	QRD141J-103SY	"	"	"
R613	QRD141J-331SY	330 Ω	"	"
R614	QRD141J-331SY	"	"	"
R615	QVD7A3M-1F5V	250 kΩ	"	Carbon (Balance Control)
R616	QVZ1221-002	100 kΩ	1/2 W	Carbon (Master Volume)
R618	QRD141J-220SY	22 Ω	1/4 W	Carbon
R619	QRD141J-472SY	4.7 kΩ	"	"
R620	QRD141J-472SY	"	"	"
R621	QRD141J-334SY	330 kΩ	"	Carbon (Except U.S.A. & Canada)
R622	QRD141J-334SY	"	"	"
R623	QRD141J-104SY	100 kΩ	"	"
R624	QRD141J-104SY	"	"	"
R625	QRD141J-331SY	330 Ω	"	Carbon
R626	QRD141J-331SY	"	"	"
R629	QRD141J-105SY	1 MΩ	"	"
R630	QRD141J-105SY	"	"	"
R631	QRD141J-100SY	10 Ω	"	"
R632	QRD141J-100SY	"	"	"
R633	QRD141J-331SY	330 Ω	"	"
R634	QRD141J-331SY	"	"	"
R701	QRD141J-473SY	47 kΩ	"	"
R702	QRD141J-473SY	"	"	"
R703	QRD141J-5R6SY	5.6 Ω	"	"
R704	QRD141J-5R6SY	"	"	"
R705	QRD141J-101SY	100 Ω	"	"
R706	QRD141J-101SY	"	"	"
R707	QRD141J-471SY	470 Ω	"	"
R708	QRD141J-471SY	"	"	"
R711	QRD141J-202SL	2 kΩ	"	"
R712	QRD141J-202SL	"	"	"
R713	QRD141J-242SL	2.4 kΩ	"	"
R714	QRD141J-242SL	"	"	"
R715	QRD141J-151SY	150 Ω	"	"
R716	QRD141J-151SY	"	"	"
R717	QRD129J-152	1.5 kΩ	1/2 W	"
R718	QRD129J-152	"	"	"
R719	QRD141J-270SY	27 Ω	1/4 W	"
R720	QRD141J-270SY	"	"	"
R721	QRD141J-102SY	1 kΩ	"	"
R722	QRD141J-102SY	"	"	"
R723	QRD141J-184SY	180 kΩ	"	"
R724	QRD141J-184SY	"	"	"
R725	QRD141J-123SY	12 kΩ	"	"
R726	QRD141J-123SY	"	"	"
R727	QRD141J-163SY	16 kΩ	"	"
R728	QRD141J-163SY	"	"	"
R729	QRD141J-220SY	22 Ω	"	"
R730	QRD141J-220SY	"	"	"
R731	QRD141J-224SY	220 kΩ	"	"
R732	QRD141J-224SY	"	"	"
R733	QRD141J-331SY	330 Ω	"	"
R734	QRD141J-331SY	"	"	"
R735	QRD141J-105SY	1 MΩ	"	"
R736	QRD141J-105SY	"	"	"
R737	QRD141J-821SY	820 Ω	"	"
R738	QRD141J-821SY	"	"	"
R739	QRD141J-475SY	4.7 MΩ	"	"

Resistors

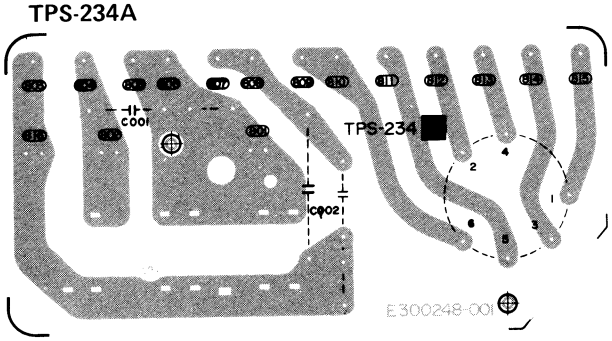
Item No.	Part Number	Rating		Description
R740	QRD141J-475SY	4.7 MΩ	1/4 W	Carbon
R741	QRD141J-683SY	68 kΩ	"	"
R742	QRD141J-683SY	68 kΩ	"	"
R743	QRD141J-122SY	1.2 kΩ	"	"
R744	QRD141J-122SY	"	"	"
R745	QRD141J-222SY	2.2 kΩ	"	"
R746	QRD141J-222SY	"	"	"
R747	QRD141J-133SY	13 kΩ	"	"
R748	QRD141J-133SY	"	"	"
R749	QRD141J-472SY	4.7 kΩ	"	"
R750	QRD141J-472SY	"	"	"
R812	QRD141J-912SY	9.1 kΩ	"	"
R823	QRD149J-101S	100 Ω	"	" ⚠
R824	QRD149J-101S	"	"	" ⚠

Others

Item No.	Part Number	Rating	Description
J203	EWS018-010		8P Socket Wire Ass'y
J204	EWS017-012		7P "
J205	EWS013-030		3P "
J611	E03591-22DS		2Pin Jack Ass'y
J612～614	E03591-42D		4Pin "
J615	E03623-003		Din Socket Ass'y (Except U.S.A. & Canada)
J801	EWS012-009		2P Socket Wire Ass'y
P601, 605	QMV5005-002		2P Plug Ass'y
P602	QMV5005-004		4P "
P603	QMV5005-006		6P "
P604	QMV5005-005		5P "
P606	QMV5005-003		3P "
4KEY	QSP0249-112		Push Switch
5KEY	QSP0259-003		"
	EWT011-018		Terminal Wire Ass'y

8-(5) TPS-234 AC Socket P.C. Board Ass'y

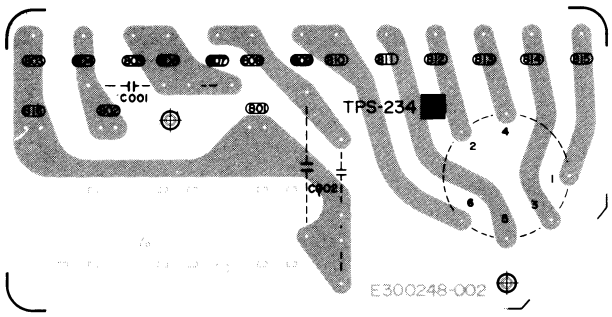
TPS-234A



For U.S. Military Market and Other Countries

Fig. 19

TPS-234B or CBS



TPS-234B : for Australia & Europe
TPS-234CBS : for U.K.

Fig. 20

Item No.	Description	Part Number		
		TPS-234A	TPS-234B	TPS-234CBS
C001/C002	Film Capacitor ⚠	QFH53BM-103 (0.01 μF/AC 500 V)	QFZ9007-103 (0.01 μF/AC 450 V)	QFZ9007-103BS (0.01 μF/AC 450 V)
	AC Outlets ⚠	QMC0637-003	—	—
	Tab (Long)	E43727-001	E43727-001	E43727-001
	Tab (Short)	E65508-001	E65508-001	E65508-001
	Bracket	—	E65586-002	E65586-002
	Tapping Screw	—	SBSB3008Z	SBSB3008Z
	Voltage Selector ⚠	QSR0085-001	QSR0085-001	QSR0085-001BS

8-(6) TPS-255 AC Fuse P.C. Board Ass'y

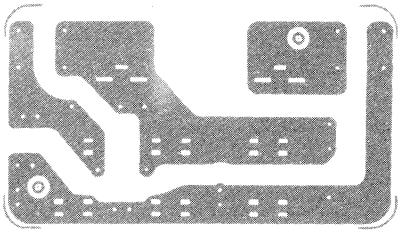


Fig. 21

Note:

The specific symbols (赤, 黒, 白, ... etc.) on a surface of above P.C. Board are actually unrelated to the repair service and are significant denotement in order to process the proper assembly of P.C. Board at the factory.

TPS-255B for U.S.A. & Canada

Capacitor

Item No.	Part Number	Rating		Description
C001	QCZ9014-103A	0.01 μF	125 V	Ceramic ⚠

Others

Item No.	Part Number	Rating	Description
J811	QMC0637-003		AC Outlet ⚠
	E03675-004		Fuse Clip ⚠
	E43727-001		Tab (Long)
	E65508-001		Tab (Short)

⚠ : Safety Parts

8-(7) TAP-282 Driver Amp. P.C. Board Ass'y

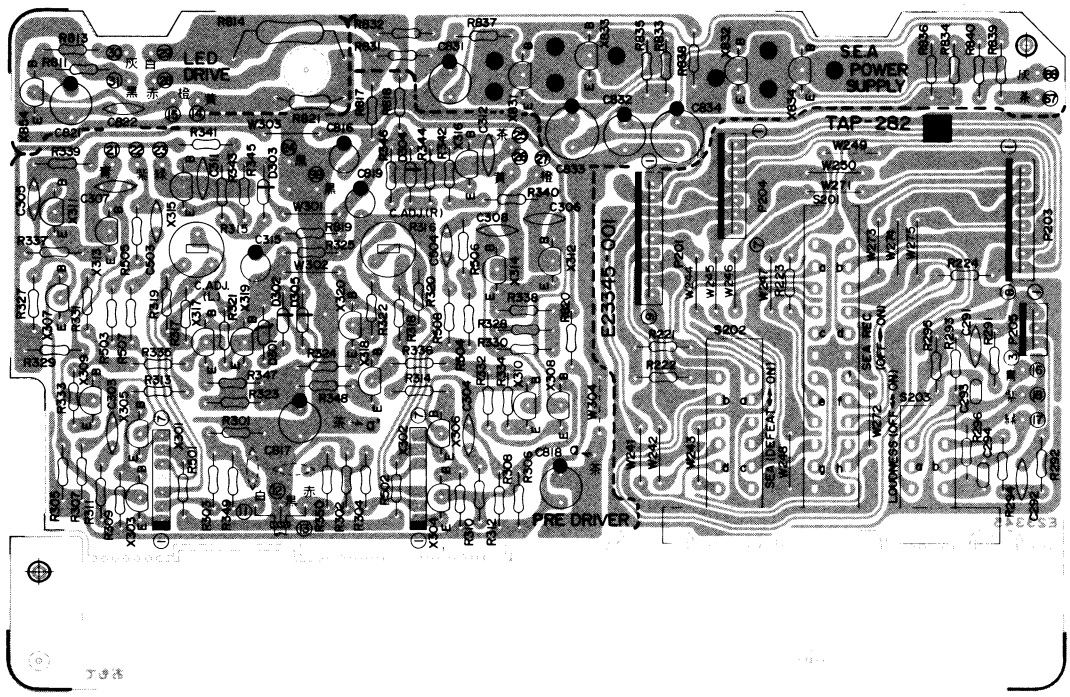


Fig. 22

Transistors

Item No.	Part Number	Rating		Description	
		Pc	fT		Maker
X301	2SK150A(GR,BL)	0.2 W		F.E.T.	Toshiba
X302	2SK150A(GR,BL)	"		"	"
X303	2SC458(C,D)	"	230 MHz	Silicon	Hitachi
X304	2SC458(C,D)	"	"	"	"
X305	2SC458(C,D)	"	"	"	"
X306	2SC458(C,D)	"	"	"	"
X307	2SC458(C,D)	"	"	"	"
X308	2SC458(C,D)	"	"	"	"
X309	2SC458(C,D)	"	"	"	"
X310	2SC458(C,D)	"	"	"	"
X311	2SA872AV(D,E)	0.3 W	120 MHz	"	"
X312	2SA872AV(D,E)	"	"	"	"
X313	2SA872AV(D,E)	"	"	"	"
X314	2SA872AV(D,E)	"	"	"	"
X315	2SC1775AV(E,F)	0.2 W	200 MHz	"	"
X316	2SC1775AV(E,F)	"	"	"	"
X317	2SC458(C,D)	"	230 MHz	"	"
X318	2SC458(C,D)	"	"	"	"
X319	2SC458(C,D)	"	"	"	"
X320	2SC458(C,D)	"	"	"	"
X831	2SC2235(O,Y)	0.9 W	120 MHz	"	Toshiba
X832	2SA965(O,Y)	"	"	"	"
X833	2SC2235(O,Y)	"	"	"	"
X834	2SA965(O,Y)	"	"	"	"
X854	2SA1084(E)	0.4 W	"	"	Hitachi

Diodes

Item No.	Part Number	Rating	Description	
				Maker
D301	RD5.6EB3		Silicon (Zener)	NEC
D302	1S2076-31		Silicon	Hitachi
D303	1S2076-31		"	"
D304	1S2076-31		"	"
D305	1S2076-31		"	"

Capacitors

Item No.	Part Number	Rating		Description
C291	QCS21HJ-331	330 pF	50 V	Ceramic
C292	QCS21HJ-331	"	"	"
C293	QFM31HJ-273	0.027 μF	"	Mylar
C294	QFM31HJ-273	"	"	"
C303	QCS21HJ-471	470 pF	"	Ceramic
C304	QCS21HJ-471	"	"	"
C305	QCS21HJ-100	10 pF	"	"
C306	QCS21HJ-100	"	"	"
C307	QCS21HJ-150	15 pF	"	"
C308	QCS21HJ-150	"	"	"
C311	QCS21HJ-560	56 pF	"	"
C312	QCS21HJ-560	"	"	"
C315	QET51HR-105H	1 μF	"	Electrolytic
C503	QCS21HJ-150	15 pF	"	Ceramic
C504	QCS21HJ-150	"	"	"

Capacitors

Item No.	Part Number	Rating		Description
C816	QET51JR-225H	2.2 μF	63 V	Electrolytic
C817	QET51HR-476H	47 μF	50 V	"
C818	QET51HR-476H	"	"	"
C819	QET51JR-225H	2.2 μF	63 V	"
C821	QET50JR-227H	220 μF	6.3 V	"
C822	QCS21HJ-101	100 pF	50 V	Ceramic
C831	QET51HR-476	47 μF	"	Electrolytic
C832	QET51HR-476	"	"	"
C833	QET51ER-107	100 μF	25 V	"
C834	QET51ER-107	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R221	QRD141J-104SY	100 kΩ	1/4 W	Carbon
R222	QRD141J-104SY	"	"	"
R223	QRD141J-331SY	330 Ω	"	"
R224	QRD141J-331SY	"	"	"
R291	QRD141J-105SY	1 MΩ	"	"
R292	QRD141J-105SY	"	"	"
R293	QRD141J-333SY	33 kΩ	"	"
R294	QRD141J-333SY	"	"	"
R295	QRD141J-203SY	20 kΩ	"	"
R296	QRD141J-203SY	"	"	"
R301	QRD141J-105SY	1 MΩ	"	"
R302	QRD141J-105SY	"	"	"
R303	QRD141J-470SY	47 Ω	"	"
R304	QRD141J-470SY	"	"	"
R305	QRD141J-123SY	12 kΩ	"	"
R306	QRD141J-123SY	"	"	"
R307	QRD141J-123SY	"	"	"
R308	QRD141J-123SY	"	"	"
R309	QRD141J-124SY	120 kΩ	"	"
R310	QRD141J-124SY	"	"	"
R311	QRD141J-331SY	330 Ω	"	"
R312	QRD141J-331SY	"	"	"
R313	QRD141J-563SY	56 kΩ	"	"
R314	QRD141J-563SY	"	"	"
R315	QVP4A0B-221	220 Ω		
R316	QVP4A0B-221	"		
R317	QRD141J-270SY	27 Ω	1/4 W	Carbon
R318	QRD141J-270SY	"	"	"
R319	QRD141J-270SY	"	"	"
R320	QRD141J-270SY	"	"	"
R321	QRD141J-562SY	5.6 kΩ	"	"
R322	QRD141J-562SY	"	"	"
R323	QRD141J-202SY	2 kΩ	"	"
R324	QRD141J-202SY	"	"	"
R325	QRD141J-273SY	27 kΩ	"	"
R327	QRZ0052-102	1k Ω	"	Carbon (Fuse) ⚠
R328	QRZ0052-102	"	"	" ⚠
R329	QRZ0052-102	"	"	" ⚠
R330	QRZ0052-102	"	"	" ⚠
R331	QRD141J-220SY	22 Ω	"	Carbon
R332	QRD141J-220SY	"	"	"
R333	QRD141J-220SY	"	"	"
R334	QRD141J-220SY	"	"	"
R335	QRD141J-103SY	10 kΩ	"	"
R336	QRD141J-103SY	"	"	"

Resistors

Item No.	Part Number	Rating		Description
R337	QRZ0052-101	100 Ω	1/4 W	Carbon (Fuse) ⚠
R338	QRZ0052-101	"	"	" ⚠
R339	QRD141J-432SY	4.3 kΩ	"	Carbon
R340	QRD141J-432SY	"	"	"
R341	QRD141J-432SY	"	"	"
R342	QRD141J-432SY	"	"	"
R343	QRD149J-181S	180 Ω	"	Carbon ⚠
R344	QRD149J-181S	"	"	" ⚠
R345	QRD149J-181S	"	"	" ⚠
R346	QRD149J-181S	"	"	" ⚠
R347	QRD141J-182SY	1.8 kΩ	"	Carbon
R348	QRD141J-182SY	"	"	"
R349	QRD149J-151S	150 Ω	"	Carbon ⚠
R350	QRD149J-151S	"	"	" ⚠
R501	QRD149J-361S	360 Ω	"	" ⚠
R502	QRD149J-361S	"	"	" ⚠
R503	QRD141J-133SY	13 kΩ	"	Carbon
R504	QRD141J-133SY	"	"	"
R505	QRD141J-393SY	39 kΩ	"	"
R506	QRD141J-393SY	"	"	"
R507	QRD141J-181SY	180 Ω	"	"
R508	QRD141J-181SY	"	"	"
R811	QRD141J-273SY	27 kΩ	"	"
R813	QRD141J-563SY	56 kΩ	"	"
R814	QRG027J-122	1.2 kΩ	2 W	Oxide Metal Film
R817	QRD149J-150S	15 Ω	1/4 W	Carbon ⚠
R818	QRD149J-150S	"	"	" ⚠
R819	QRD149J-471S	470 Ω	"	" ⚠
R820	QRD149J-122S	1.2 kΩ	"	" ⚠
R821	QRD129J-331	330 Ω	1/2 W	" ⚠
R831	QRZ0052-470	47 Ω	1/4 W	Carbon (Fuse) ⚠
R832	QRZ0052-470	"	"	" ⚠
R833	QRD149J-101S	100 Ω	"	Carbon ⚠
R834	QRD149J-101S	"	"	" ⚠
R835	QRD149J-101S	"	"	" ⚠
R836	QRD149J-101S	"	"	" ⚠
R837	QRD149J-470S	47 Ω	"	" ⚠
R838	QRD149J-470S	"	"	" ⚠
R839	QRD149J-101S	100 Ω	"	" ⚠
R840	QRD149J-101S	"	"	" ⚠

Others

Item No.	Part Number	Rating	Description
J301	EWS013-027		3P Socket Ass'y
J302	EWS013-028		3P Socket Ass'y
J303	EWS015-020		5P Socket Ass'y
J603	EWS016-016		6P Socket Ass'y
J606	EWS013-029		3P Socket Ass'y
J802	EWS012-017		2P Socket Ass'y
P201	QMV5005-009		9P Plug Ass'y
P203	QMV5005-008		8P Plug Ass'y
P204	QMV5005-007		7P Plug Ass'y
P205	QMV5005-003		3P Plug Ass'y
3KEY	QSP0023-007		3 Key Push Sw. (SEA ON-Defeat, SEA REC, Loudness)
	E43727-001		Tab

⚠ : Safety Parts

9. Packing Materials and Part Numbers

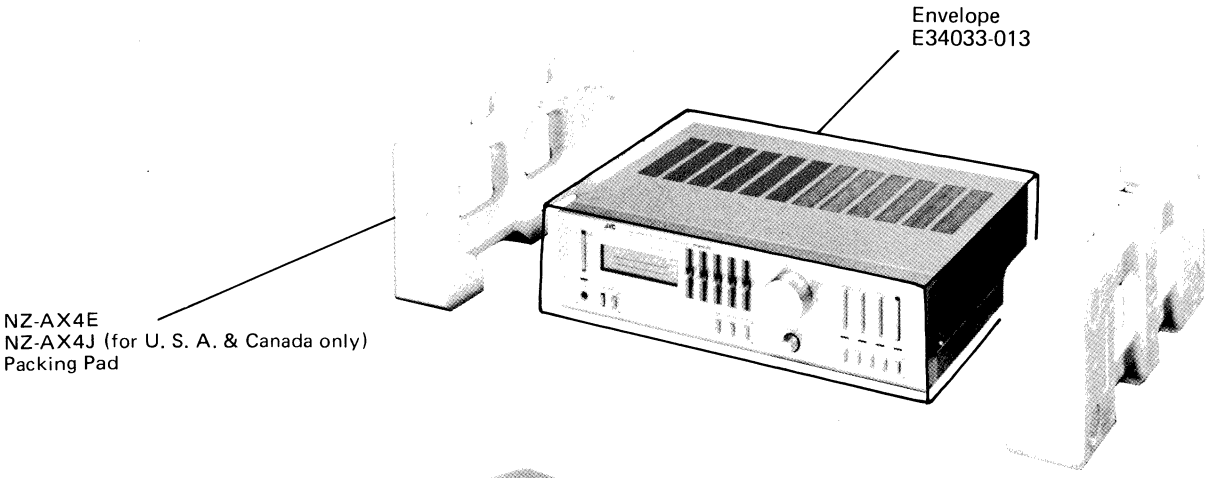


Fig. 23

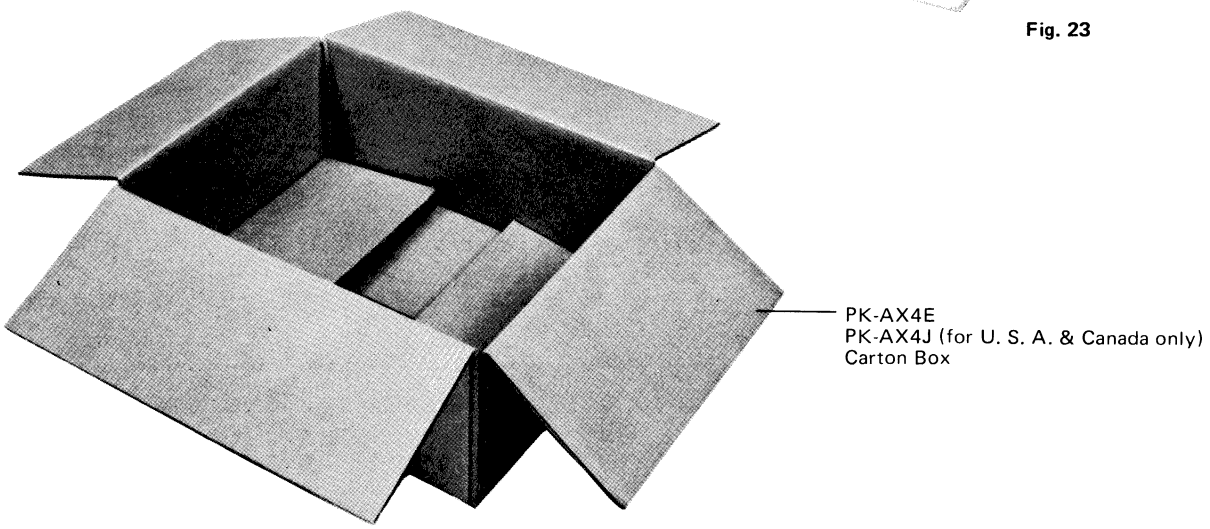


Fig. 24

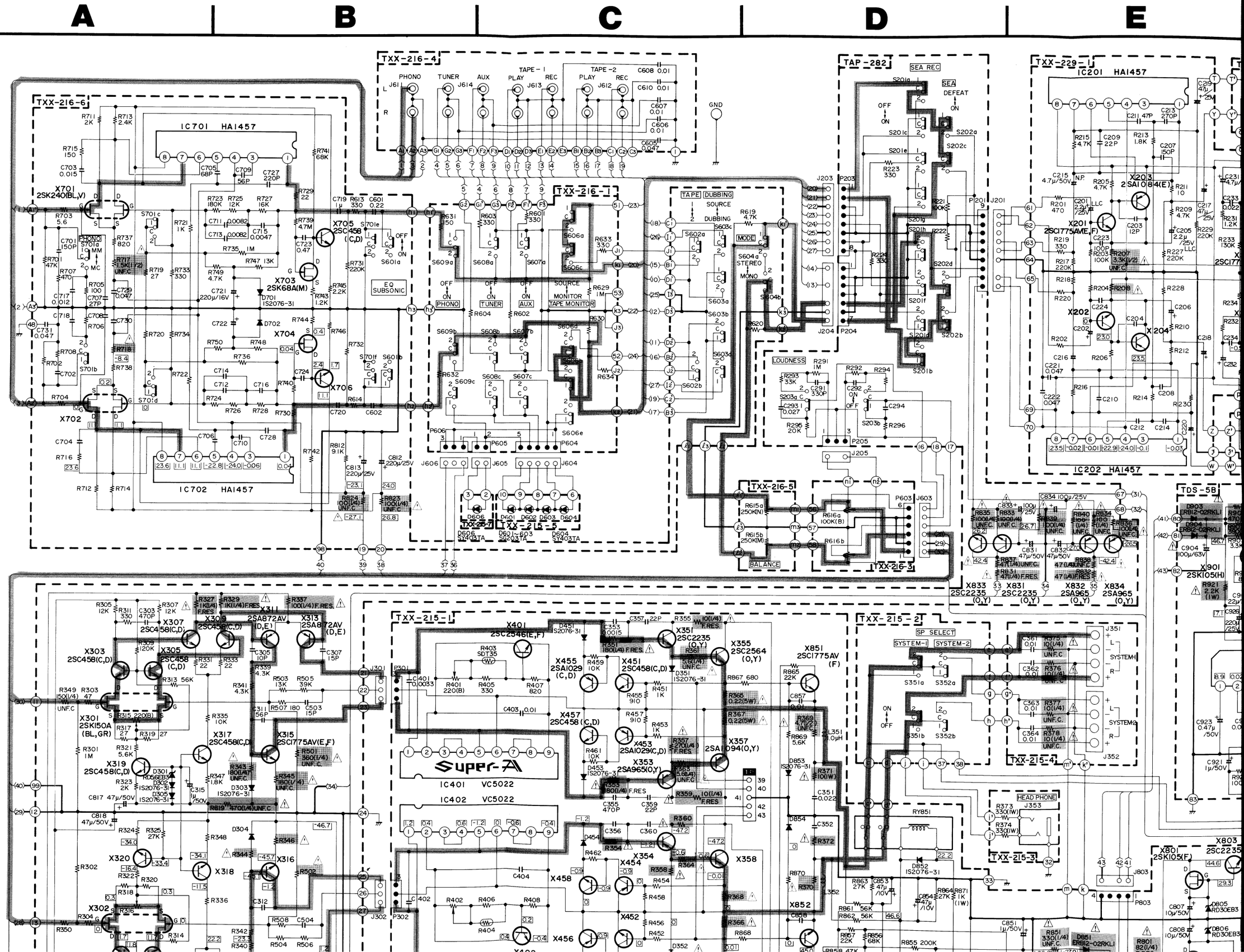
10. Accessories List

Item No.	Part Number	Description	Q'ty
1	E30580-810A	Instruction Book (for U.K., E30580-810ABS)	1
2	See below	Warranty Card	1
3	E41202-2	Envelope for Instruction Book & Warranty Card	1
4	BT20024B	"Do it Better" (for U.S.A. only)	1
5	BT20023	Service Procedures (for U.S.A. only)	1
6	QMF51A2-2R0L or 4R0S	Fuses (for U.S.Military Market & Other Countries)	1
7	E64208-001	Envelope for Fuses (for U.S. Military Market & Other Countries)	1
8	E67142-T2R0 or T4R0	Fuse Label (for U. S. Military Market & Other Countries)	1
9	E64216-002	Caution Tag for Power Cord (for U.S. Military Market)	1

Warranty Card

U.S.A.	Canada	U.K.	Europe	Australia	U.S. Military Market
BT20032B	BT20025C	BT20013C	–	BT20029B	BT20032B

11. A-X4 Schematic Diagram



agram

B C D E F

1 2 3

TXX-216-4
PHONO TUNER AUX TAPE-1 PLAY REC TAPE-2 PLAY REC
J614 J613 J612 J61
C608 0.01
C610 0.01
C607 0.01
C606 0.01
C605 0.047
GND

TXX-216-1
TXX-216-5
TXX-215-5
TXX-216-3
BALANCE

TAP-282
SEA REC
SEA DEFEAT ON
OFF ON
TAPE DUBBING
SOURCE
DUBBING
MODE
STEREO MONO
LOUDNESS
J203 J204 P203 P204

TXX-229-1
IC201 HA1457
TXX-229-2
40Hz 250Hz 1KHz 5KHz 15KHz
MAX FLAT MIN
X201 2SC1775AVE,F)
X203 2SA1084(E)
X202 X204
X231 X233 X235 X237 X239
2SC1775AV (E,F)
X232 X234 X236 X238 X240
IC202 HA1457

TDS-5B
X902 2SC2235(O,Y)
X903 2SC2235(O,Y)
X904 2SC2235(O,Y)
X901 2SK105(H)
D905 VD1220
IC921 TA7318P
J903 J904 J901

IC701 HA1457
X705 2SC458 (C,D)
X703 2SK68A(M)
X704
X706
EQ SUBSONIC
IC702 HA1457

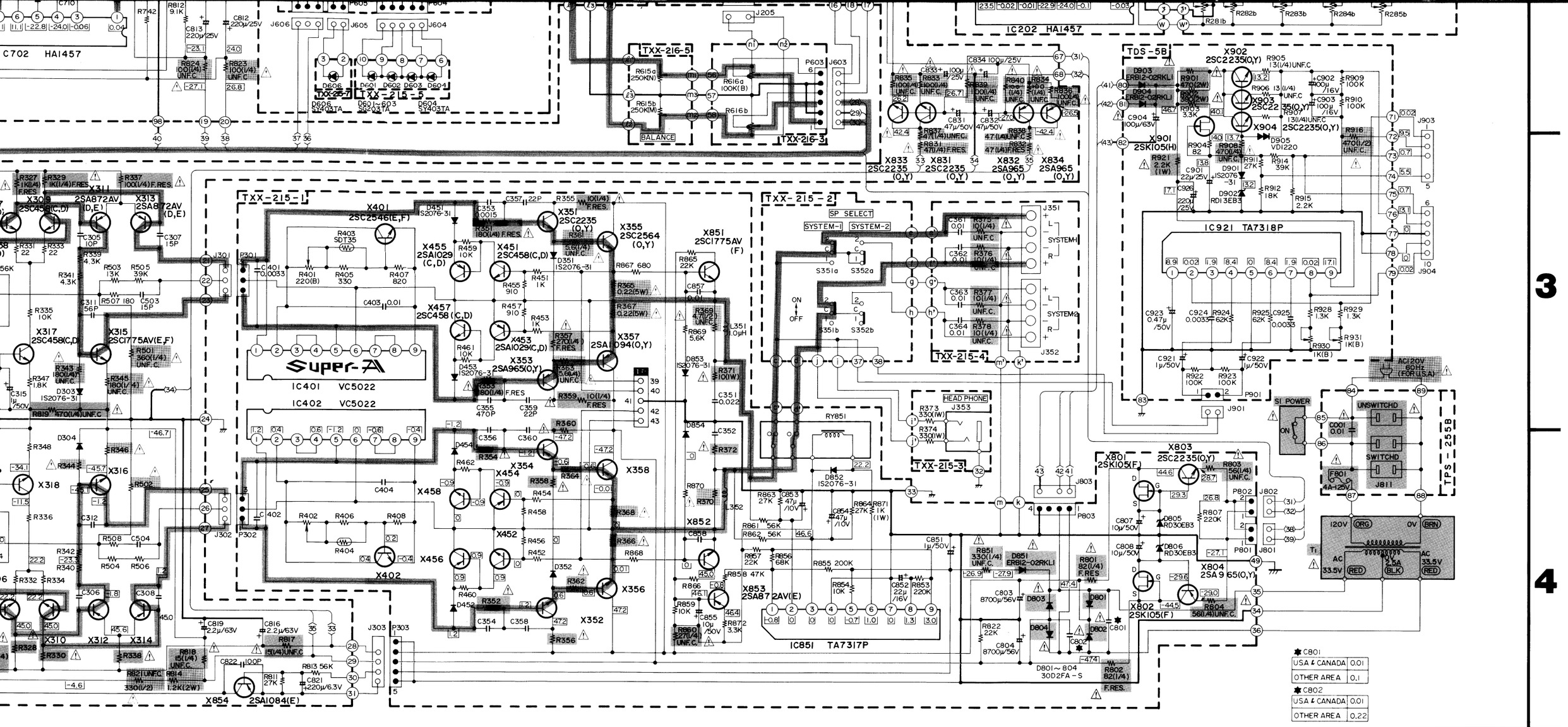
X309 2SC458(C,D)
X311 2SA872AV (D,E)
X313 2SA872AV (D,E)
X317 2SC458(C,D)
X315 2SC1775AV(E,F)
X316
X318

TXX-215-1
IC401 VC5022
IC402 VC5022
Super-A
X401 2SC2546(E,F)
X455 2SA1029 (C,D)
X457 2SC458(C,D)
X451 2SC458(C,D)
X453 2SA1029(C,D)
X351 2SC2235 (O,Y)
X355 2SC2564 (O,Y)
X353 2SA965(O,Y)
X357 2SA1094(O,Y)
X851 2SC1775AV (F)
X454 X452 X456 X458
X354 X358 X852

TXX-215-2
SP SELECT
SYSTEM-1 SYSTEM-2
TXX-215-4
TXX-215-3
HEAD PHONE J353
RY851

SI POWER
UNSWITCHD SWITCHD
F801 4A-125V
J811
AC 120V 60Hz (FOR U.S.A.)
120V ORG 0V BRN
AC 33.5V (RED) AC 33.5V (RED)
TPS-255B

X801 2SK105(F)
X803 2SC2235(O,Y)
X804 2SC2235(O,Y)
J801 J802 J803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TXX-215-2
TXX-215-3
TXX-215-4
TXX-215-5
TXX-216-5
TXX-216-3
TDS-5B
IC401 VC5022
IC402 VC5022
IC851 TA7317P
IC921 TA7318P
IC202 HAI457
Super-A
SP SELECT
SYSTEM-1
SYSTEM-2
HEAD PHONE
BALANCE
TPS-255B
X401 2SC2546(E,F)
X451 2SC458(C,D)
X457 2SC458(C,D)
X455 2SA1029(C,D)
X453 2SA1029(C,D)
X351 2SC2235(O,Y)
X355 2SC2564(O,Y)
X357 2SA1094(O,Y)
X353 2SA965(O,Y)
X851 2SC1775AV(F)
X853 2SA872AV(E)
X309 2SA872AV(D,E)
X311 2SA872AV(D,E)
X313 2SA872AV(D,E)
X317 2SC458(C,D)
X315 2SC1775AV(E,F)
X310 X312 X314
X316 X318
X354 X358 X352 X356
X402 X452 X454 X456 X458
X852
X854 2SA1084(E)
X833 2SC2235(O,Y)
X831 2SC2235(O,Y)
X832 2SA965(O,Y)
X834 2SA965(O,Y)
X901 2SK105(H)
X902 2SC2235(O,Y)
X903 2SC2235(O,Y)
X904 2SC2235(O,Y)
X801 2SK105(F)
X802 2SK105(F)
X803 2SC2235(O,Y)
X804 2SA965(O,Y)
SYSTEM-H
SYSTEM-R
SYSTEM-L
SYSTEM-2
J301
J302
J303
J351
J352
J353
J803
J804
J811
J901
J903
P301
P302
P303
P803
P804
P901
J205
J603
J606
J605
J604
P603
P605
P604
D606 S2403TA
D601~603 S2203TA
D604 S2403TA
D606 S2403TA
D601 D602 D603 D604
D903 ERB12-02RKLI
D904 ERB12-02RKLI
D905 VD1220
D901 IS2076-31
D902 RD13EB3
D801~804 30D2FA-S
D851 ERB12-02RKLI
D805 RD30EB3
D806 RD30EB3
D303 IS2076-31
D351 IS2076-31
D451 IS2076-31
D453 IS2076-31
D851 IS2076-31
D852 IS2076-31
D454 D452
D352
D362
D854
D853
D303
D304
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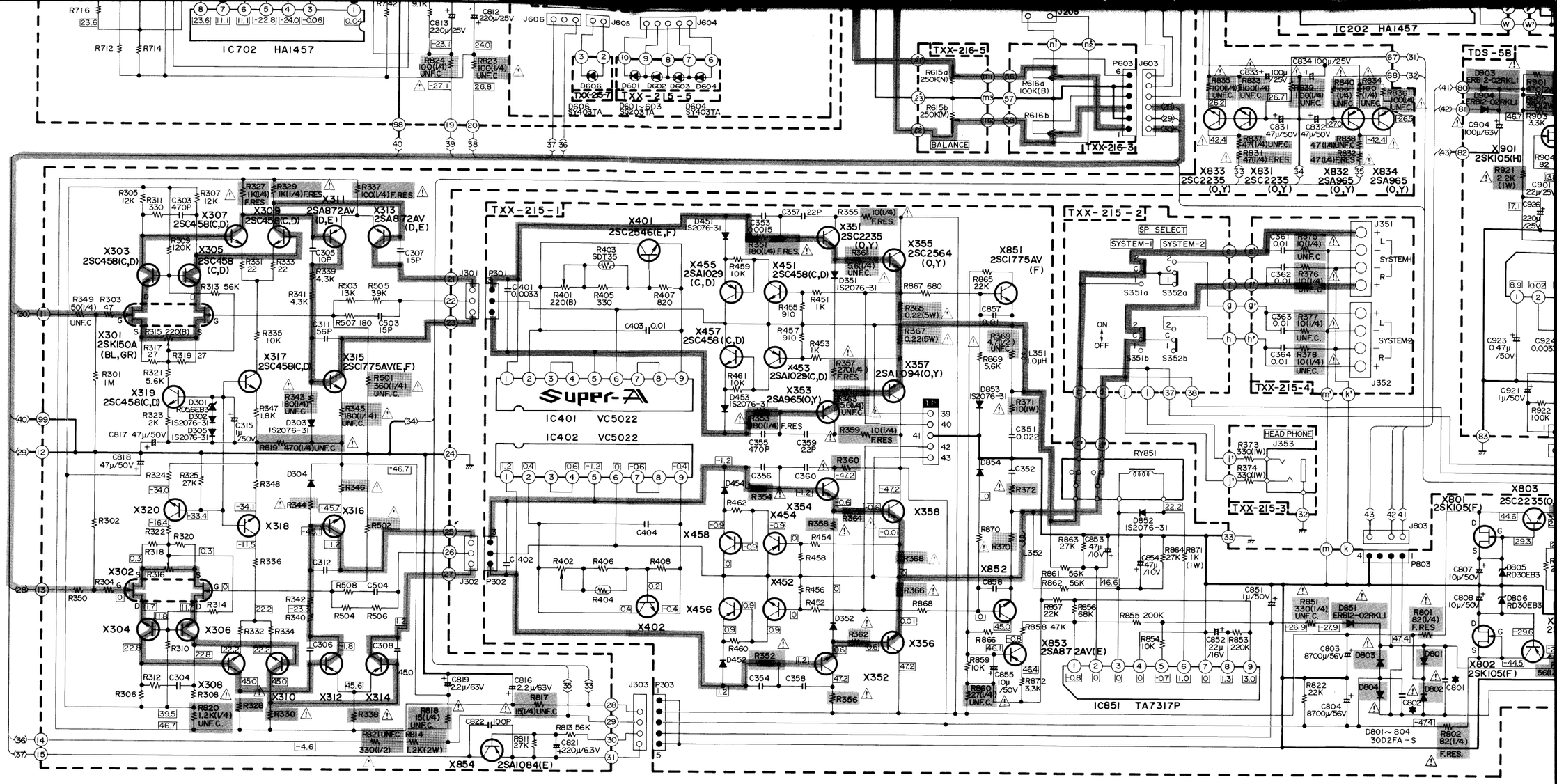
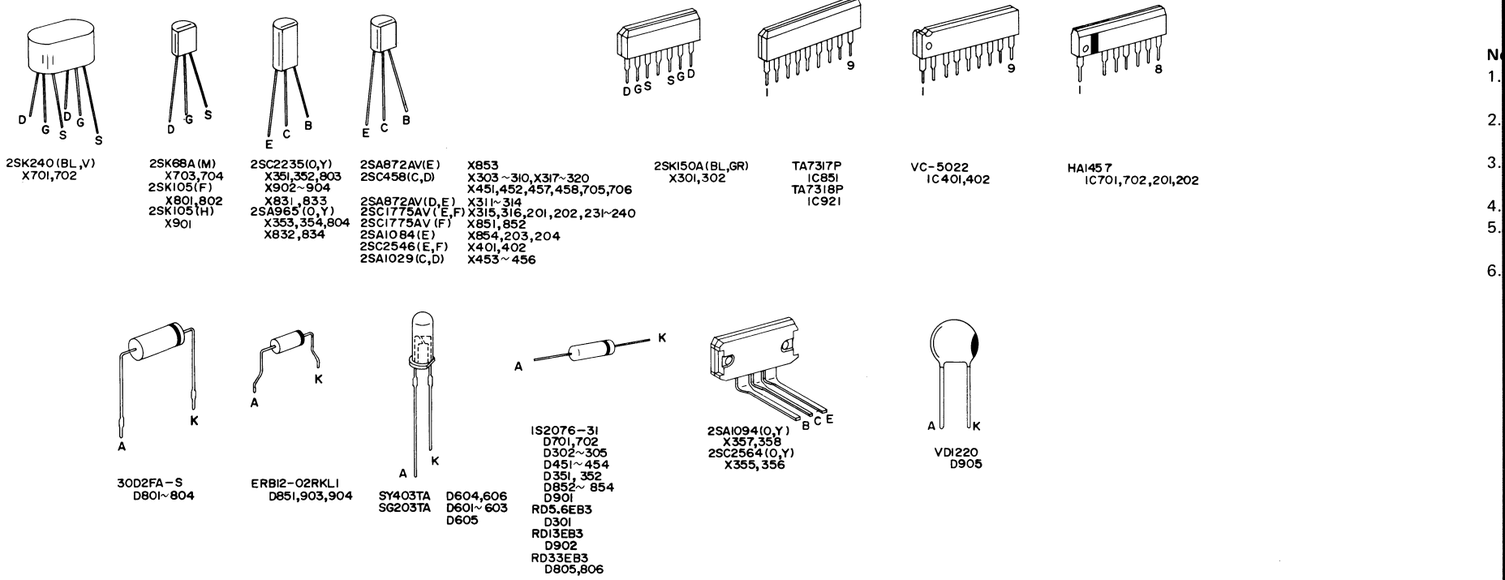
D342

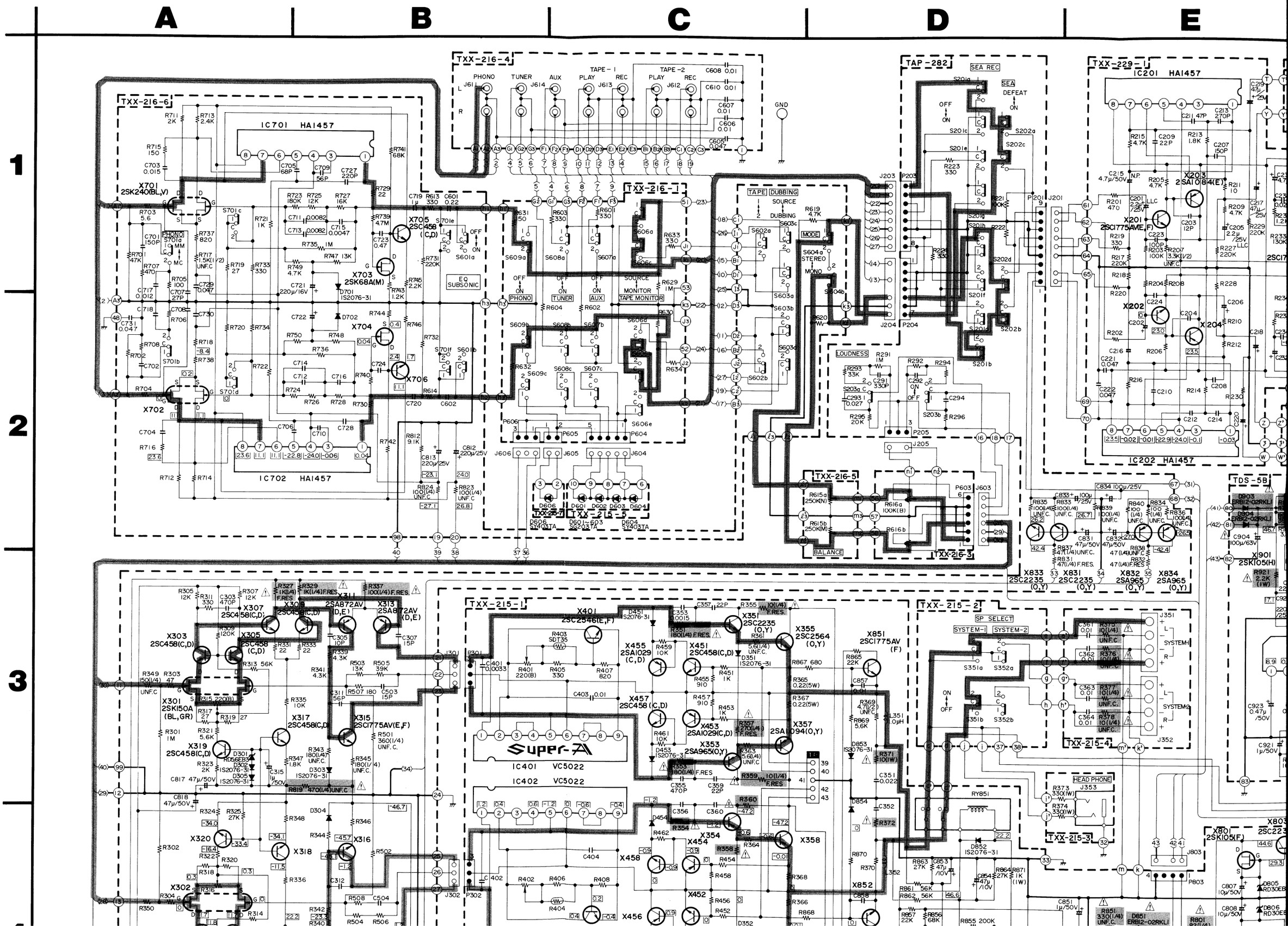


Printed Circuit Board Ass'y Location

P.C. Board Ass'y	Description	Page
TDS-5	LED Power Supply	8
TXX-215	Power Amp., Power Supply and Speakers	8
TXX-229	SEA P.C. Board Ass'y	11
TXX-216	Equalizer Amp. and Source Selector	13
TPS-234	AC Socket	15
TPS-255	AC Fuse	15
TAP-282	Driver Amp.	16



11. A-X4 Schematic Diagram



iagram

B C D E F

1 2 3

TXX-216-4
PHONO TUNER AUX TAPE-1 PLAY REC TAPE-2 PLAY REC
J611 J614 J613 J612
C608 0.01
C610 0.01
C607 0.01
C606 0.01
C605 0.047
GND

TXX-216-1
TAPE DUBBING SOURCE DUBBING MODE STEREO MONO
SOURCE MONITOR TAPE MONITOR
EQ SUBSONIC
PHONO TUNER AUX
OFF ON

TAP-282
SEA REC
SEA DEFEAT
LOUDNESS
BALANCE

TXX-229-1
IC201 HA1457
IC202 HA1457
X201 2SC1775AV(E,F)
X202
X203 2SA1084(E)
X204
X231 2SC1775AV(E,F)
X232
X233 2SC1775AV(E,F)
X234
X235 2SC1775AV(E,F)
X236
X237 2SC1775AV(E,F)
X238
X239 2SC1775AV(E,F)
X240

TXX-229-2
MAX FLAT MIN
40Hz 250Hz 1KHz 5KHz 15KHz

IC701 HA1457
IC702 HA1457
X703 2SK68A(M)
X704
X705 2SC458 (C,D)
X706

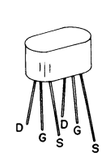
TXX-215-1
Super-A
IC401 VC5022
IC402 VC5022
X401 2SC2546(E,F)
X451 2SC458(C,D)
X455 2SA1029(C,D)
X457 2SC458(C,D)
X453 2SA1029(C,D)
X315 2SC1775AV(E,F)
X317 2SC458(C,D)
X313 2SA872AV (D,E)
X309 2SC458(C,D)
X351 2SC2235 (O,Y)
X355 2SC2564 (O,Y)
X357 2SA1094(O,Y)
X353 2SA965(O,Y)
X851 2SC1775AV (F)
X316
X318
X354
X454
X358
X452
X456
X852

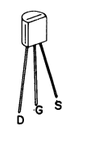
TXX-215-2
SP SELECT SYSTEM-1 SYSTEM-2
HEAD PHONE J353
RY851

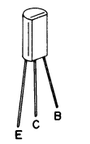
TXX-215-3
TXX-215-4
TXX-215-5
TXX-216-3
TXX-216-5
TXX-25-7

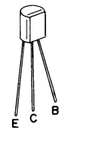
TDS-5B
X902 2SC2235(O,Y)
X903 2SC2235(O,Y)
X904 2SC2235(O,Y)
X901 2SK105(H)
X801 2SK105(F)
X803 2SC2235(O,Y)
X833 2SC2235 (O,Y)
X831 2SC2235 (O,Y)
X832 2SA965 (O,Y)
X834 2SA965 (O,Y)
IC921 TA7318P
D903 ERB12-02RKL1
D904 ERB12-02RKL1
D905 VD1220
D902 RD13EB3
D805 RD30EB3
D806 RD30EB3
D851 ERB12-02RKL1
D852 IS2076-31
D853 IS2076-31
D854 IS2076-31
D701 1S2076-31
D702
D703 IS2076-31
D451 IS2076-31
D453 IS2076-31
D606 S1403TA
D607 S1403TA
D608 S1403TA
D609 S1403TA
D610 S1403TA
AC120V 60Hz (FOR U.S.A)
SI POWER
UNSWITCHD
SWITCHD
F801 4A-125V
TPS-255B
120V ORG 0V BRN
AC 40V 2.5A AC 33.5V

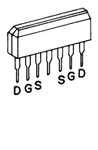
	Page
	8
and Speakers	8
	11
Selector	13
	15
	15
	16

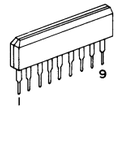


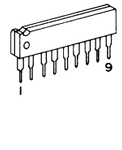


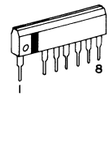


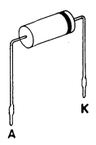


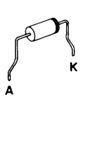


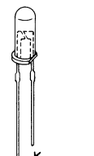


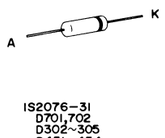


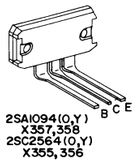


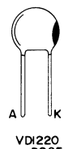






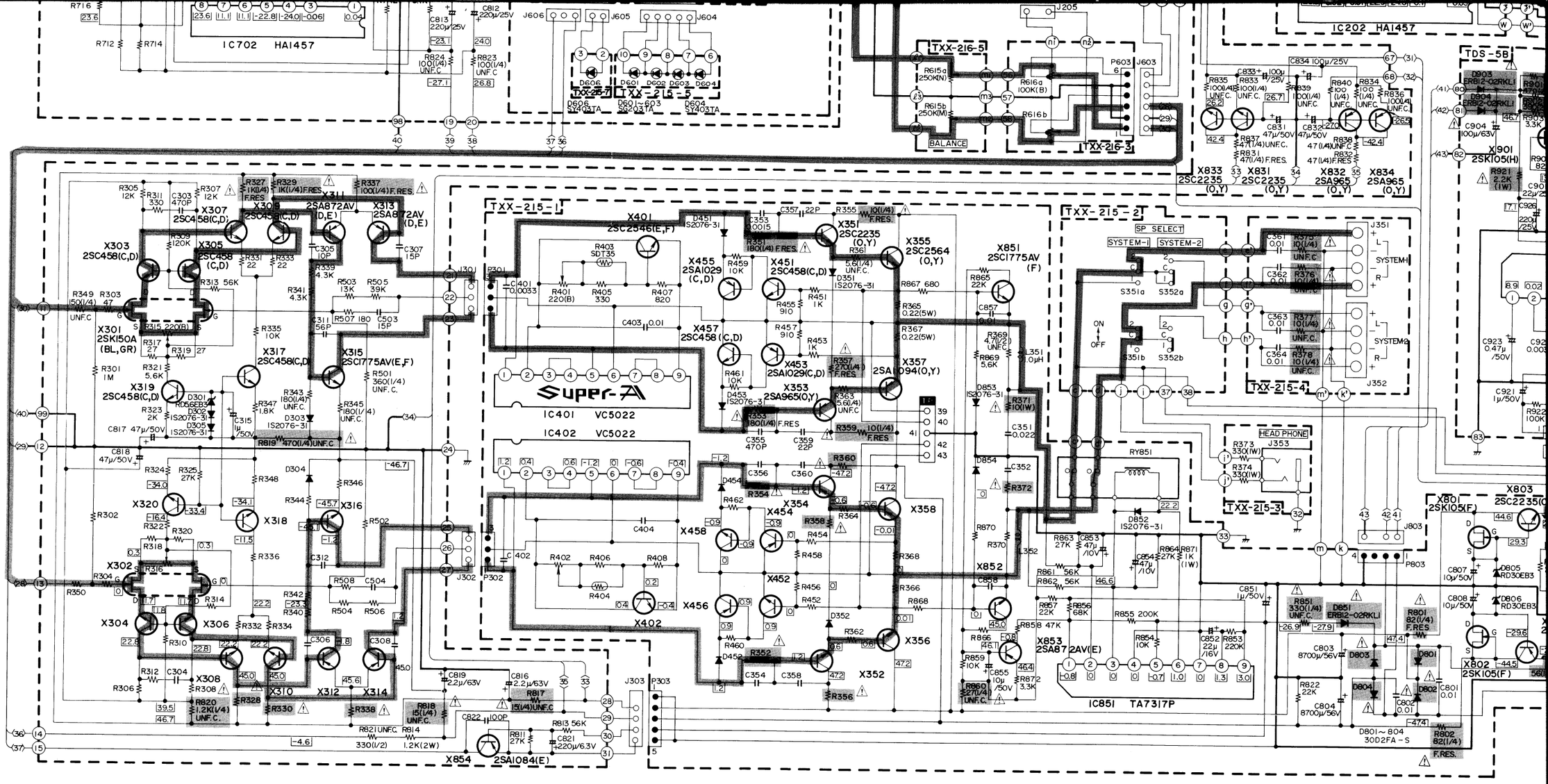






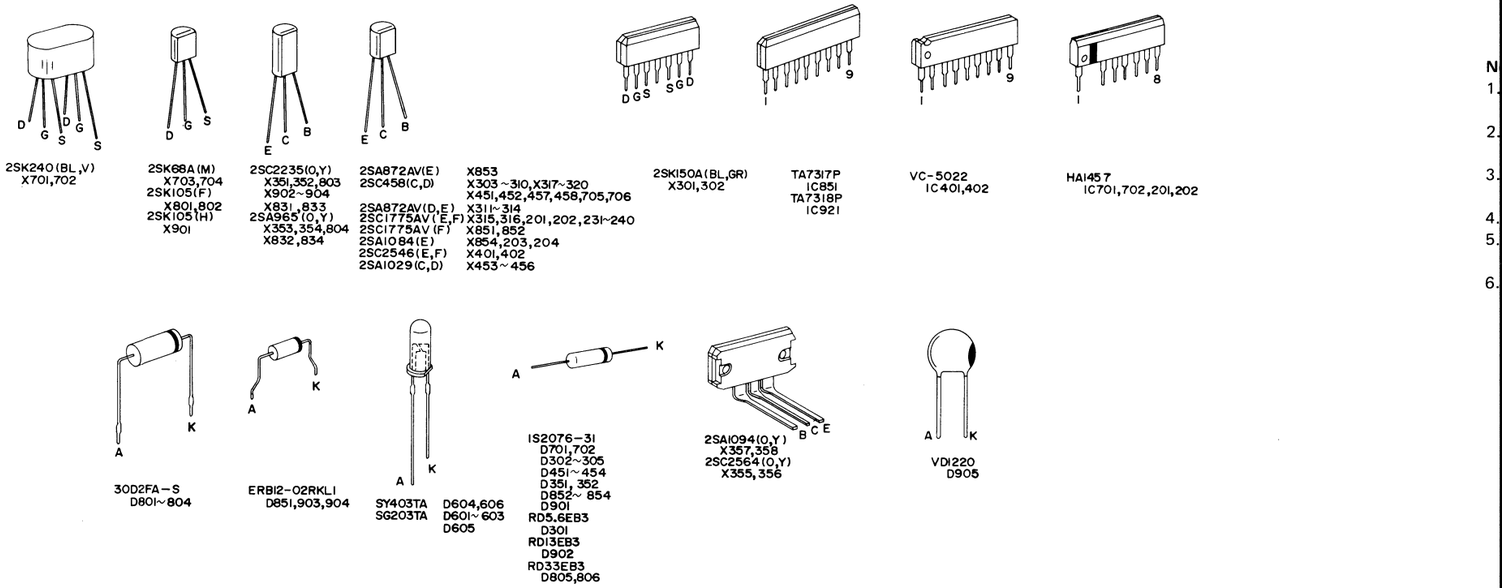
Notes:

1. Voltage values in ☐ and ☐ are measured with a tester (impedance 20 kΩ/V) without a signal applied to the unit.
2. Voltage values in ☐ are positive.
   —— indicates positive B power supply.
3. Voltage values in ☐ are negative.
   —— indicates negative B power supply.
4. ▬ indicates signal path.
5. When replacing the parts in the darkened area ▬ and those marked with ⚠, be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram.
   The design and contents are subject to change without notice.

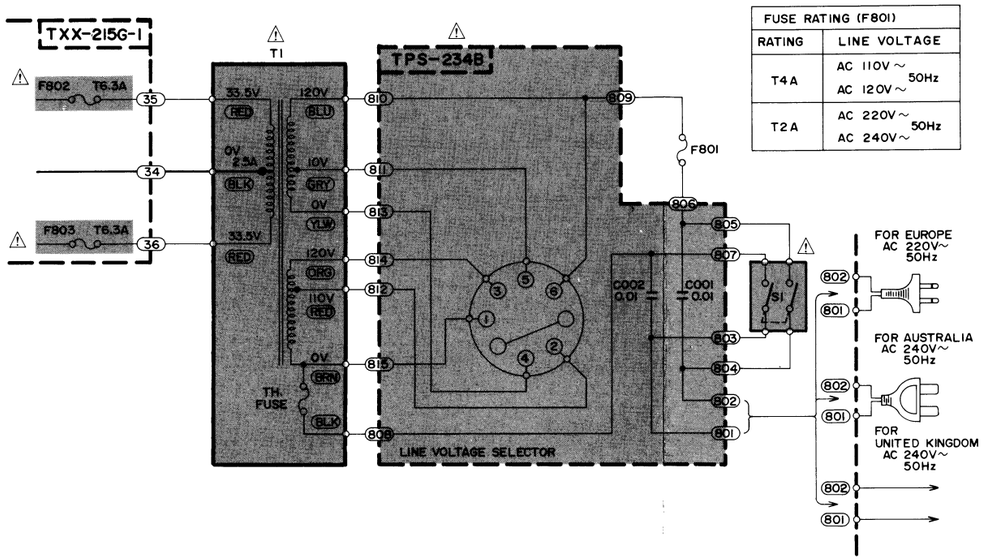


Printed Circuit Board Ass'y Location

P.C. Board Ass'y	Description	Page
TDS-5	LED Power Supply	8
TXX-215	Power Amp., Power Supply and Speakers	8
TXX-229	SEA P.C. Board Ass'y	11
TXX-216	Equalizer Amp. and Source Selector	13
TPS-234	AC Socket	15
TPS-255	AC Fuse	15
TAP-282	Driver Amp.	16

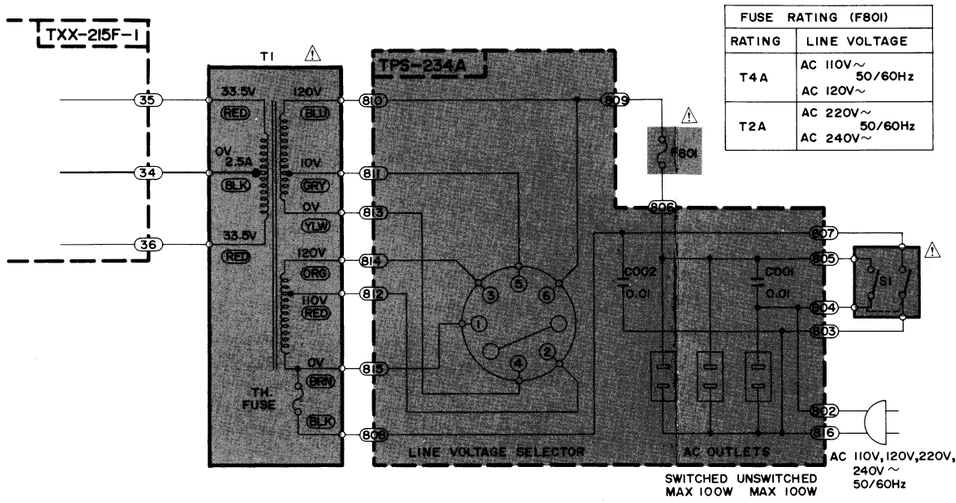


(E),(A),(BS) (E) FOR EUROPE :~ 220V, 50Hz
(A) FOR AUSTRALIA :~ 240V, 50Hz
(BS) FOR UK :~ 240V, 50Hz



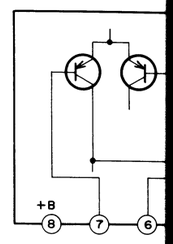
FUSE RATING (F801)	
RATING	LINE VOLTAGE
T4A	AC 110V~ 50Hz AC 120V~
T2A	AC 220V~ 50Hz AC 240V~

(U),(P) (U) FOR OTHER COUNTRIES
(P) FOR PACEX

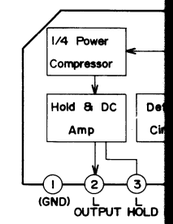


FUSE RATING (F801)	
RATING	LINE VOLTAGE
T4A	AC 110V~ 50/60Hz AC 120V~
T2A	AC 220V~ 50/60Hz AC 240V~

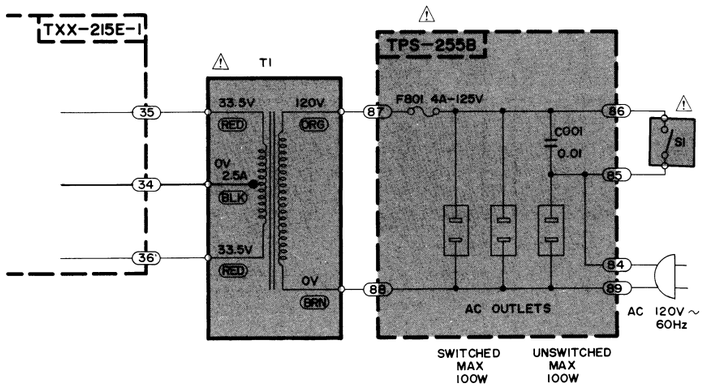
EQ or SEA IC IC7C



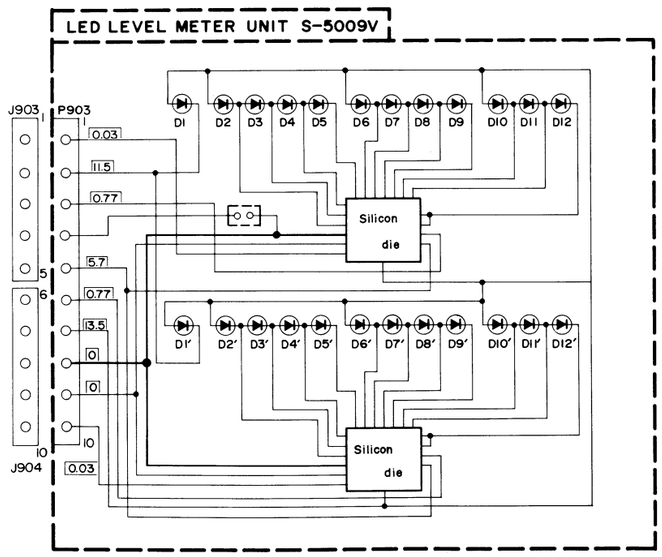
COMPRESSION



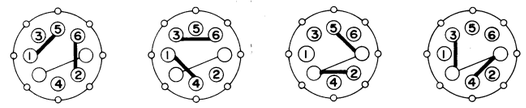
(C) FOR CANADA : AC 120V 60Hz



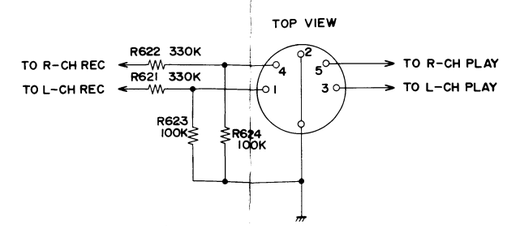
LED LEVEL METER



VOLTAGE SELECTOR CONNECTION

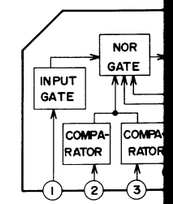


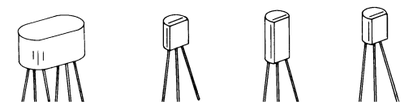
DIN CONNECTOR

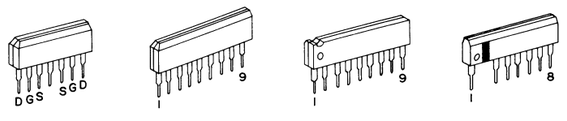


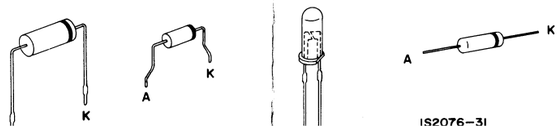
ATTACHED TO (E),(A),(BS),(U),(P) TYPE MODEL

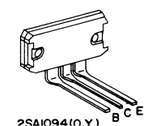
PROTECTOR



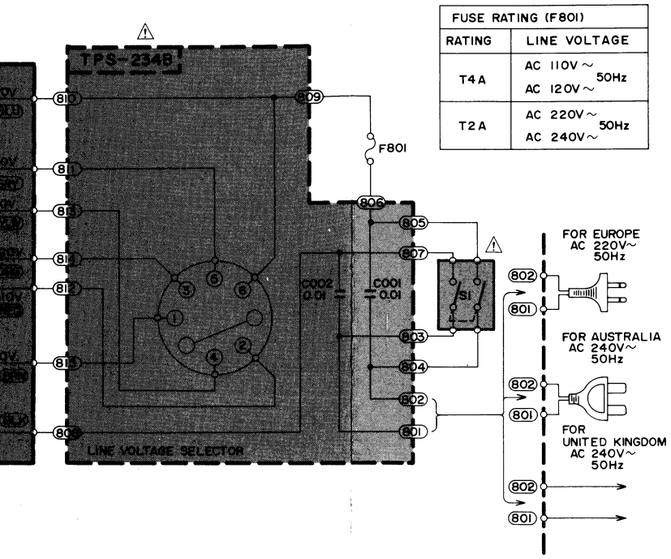






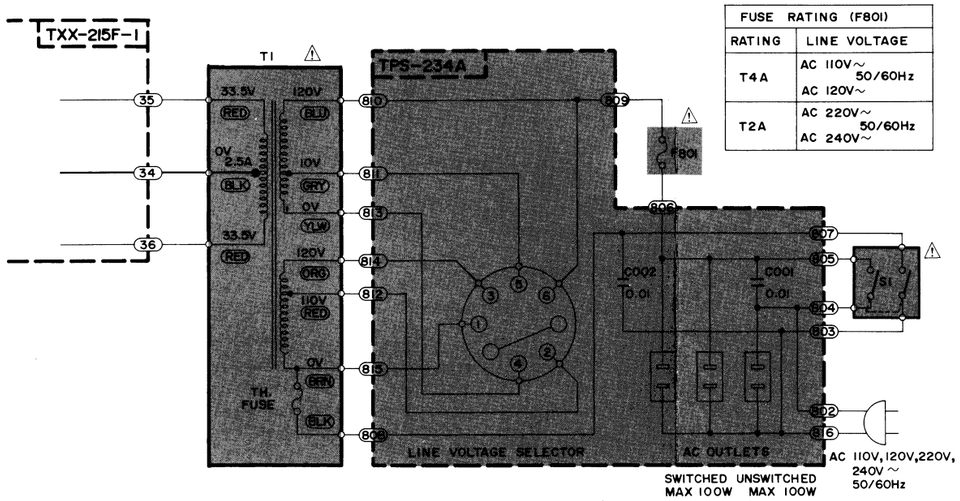


OR EUROPE :~ 220V, 50Hz
OR AUSTRALIA :~ 240V, 50Hz
OR UK :~ 240V, 50Hz



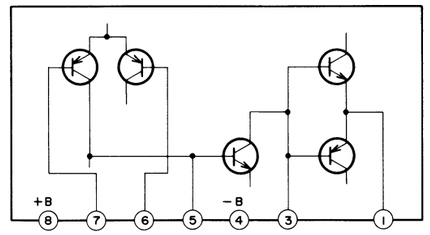
FUSE RATING (F801)	
RATING	LINE VOLTAGE
T4A	AC 110V~ AC 120V~ 50Hz
T2A	AC 220V~ AC 240V~ 50Hz

(U),(P) (U) FOR OTHER COUNTRIES (P) FOR PACEX

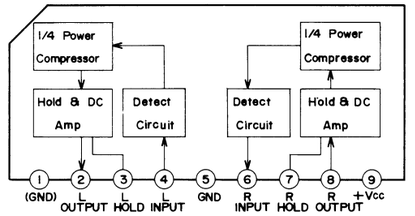


FUSE RATING (F801)	
RATING	LINE VOLTAGE
T4A	AC 110V~ AC 120V~ 50/60Hz
T2A	AC 220V~ AC 240V~ 50/60Hz

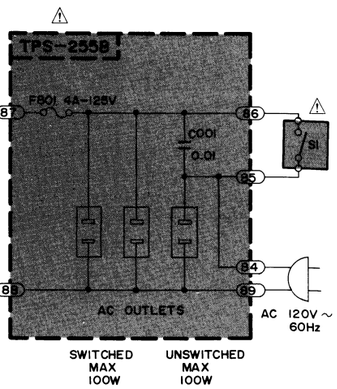
EQ or SEA IC IC701,702,201,202 HA1457



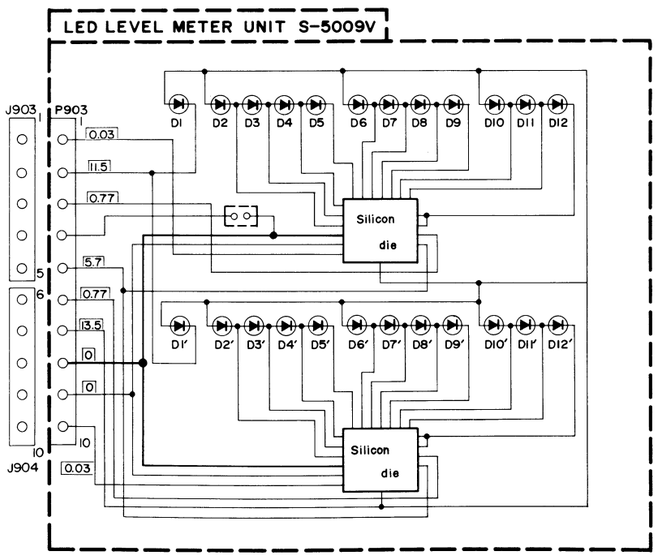
COMPRESSION IC IC921 TA7318P



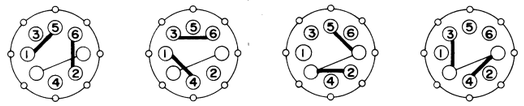
C 120V 60Hz



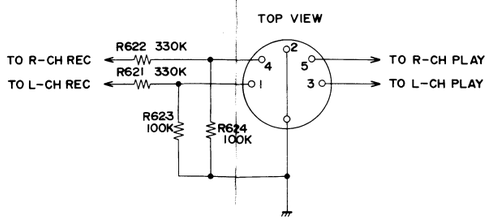
LED LEVEL METER



VOLTAGE SELECTOR CONNECTION

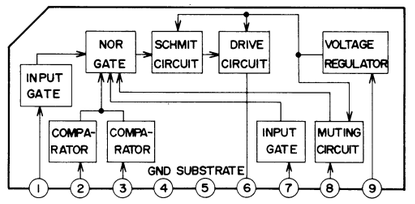


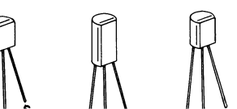
DIN CONNECTOR

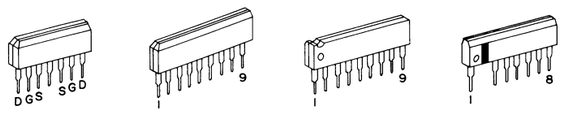


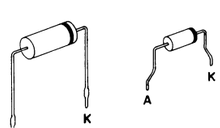
ATTACHED TO (E),(A),(BS),(U),(P) TYPE MODEL

PROTECTOR IC IC851 TA7317P

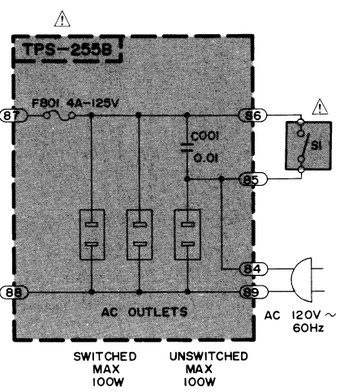




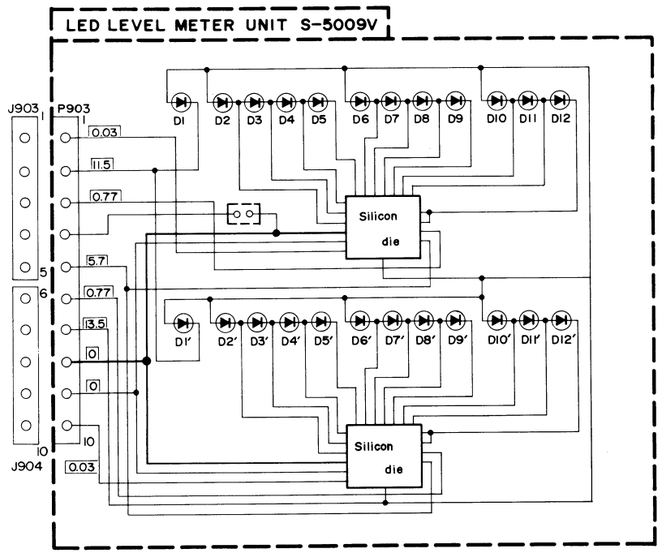




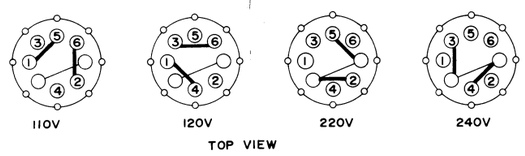
AC 120V 60Hz



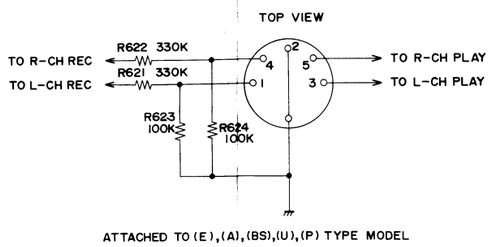
LED LEVEL METER



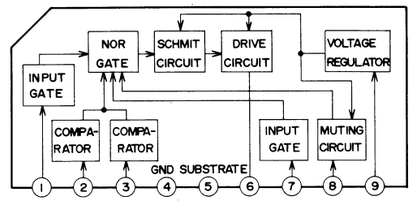
VOLTAGE SELECTOR CONNECTION



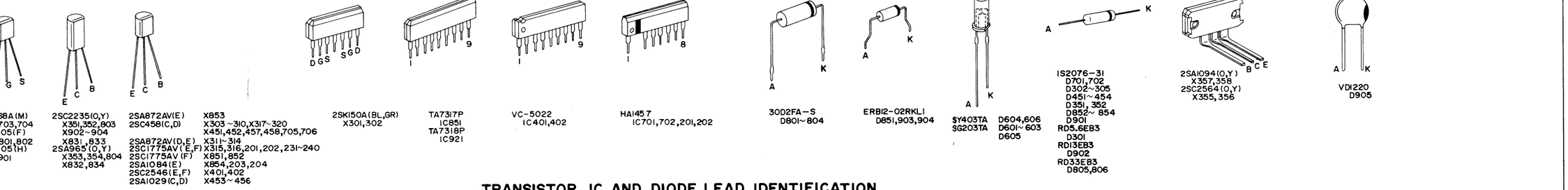
DIN CONNECTOR



PROTECTOR IC IC851 TA7317P



TRANSISTOR, IC AND DIODE LEAD IDENTIFICATION



	Page
	8
akers	8
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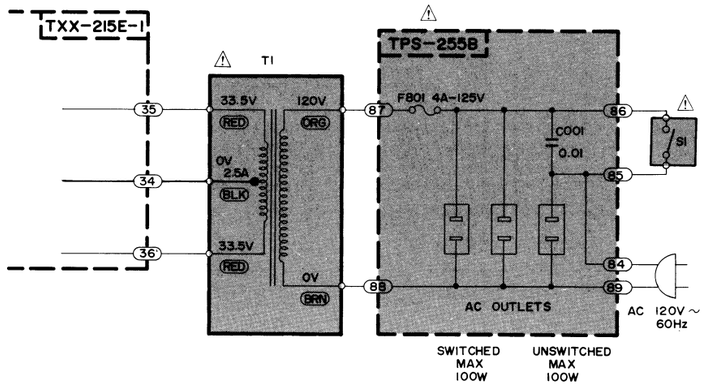
	13
	15
	15
	16

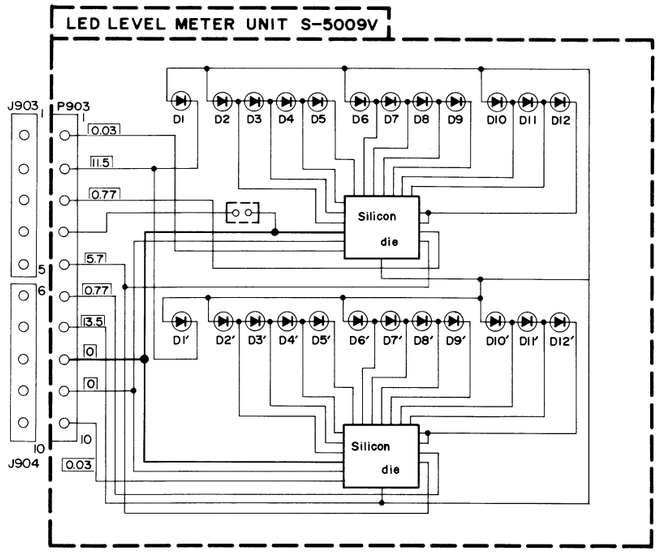
Notes:

1. Voltage values in ☐ and ☐ are measured with a tester (impedance 20 kΩ/V) without a signal applied to the unit.
2. Voltage values in ☐ are positive.
   —— indicates positive B power supply.
3. Voltage values in ☐ are negative.
   —— indicates negative B power supply.
4. ═══ indicates signal path.
5. When replacing the parts in the darkened area ▓▓▓ and those marked with ⚠, be sure to use the designated parts to ensure safety.
6. This is the standard circuit diagram.
   The design and contents are subject to change without notice.

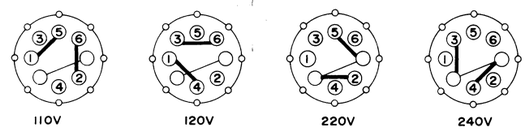
(C) FOR CANADA : AC 120V 60Hz



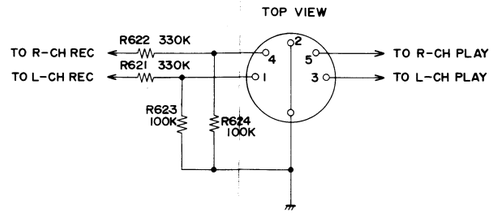
LED LEVEL METER



VOLTAGE SELECTOR CONNECTION

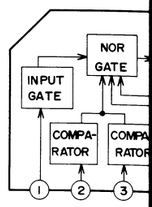


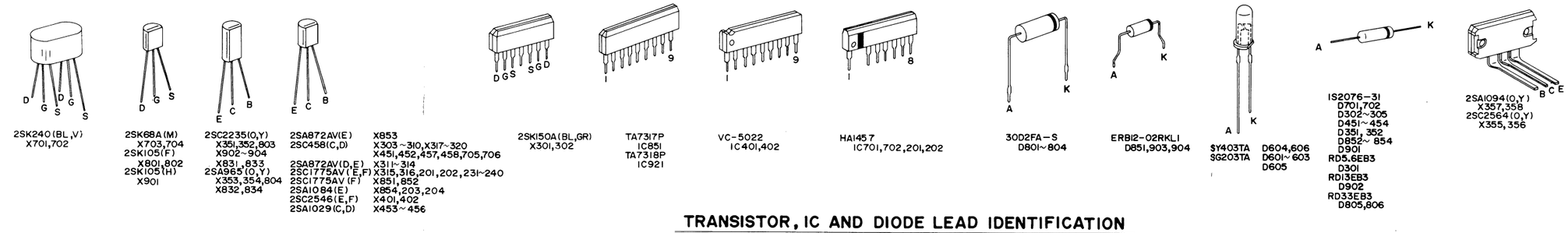
DIN CONNECTOR



ATTACHED TO (E),(A),(BS),(U),(P) TYPE MODEL

PROTECTOR





TRANSISTOR, IC AND DIODE LEAD IDENTIFICATION

Printed Circuit Board Ass'y Location

P.C. Board Ass'y	Description	Page
TDS-5	LED Power Supply	8
TXX-215	Power Amp., Power Supply and Speakers	8
TXX-229	SEA P.C. Board Ass'y	11
TXX-216	Equalizer Amp. and Source Selector	13
TPS-234	AC Socket	15
TPS-255	AC Fuse	15
TAP-282	Driver Amp.	16

Notes:

1. Voltage
   20 kΩ/V
2. Voltage
   —— indi
3. Voltage
   —— indi
4. ▬▬ indi
5. When r
   marked
6. This is t
   The des

12. Parts List with Specified Numbers for Designated Areas

Page	Item No.	Description	U.S.A. & Canada	Australia	Europe	U.K.	U.S. Military Market & Other Countries
2, 3		Top Cover (Metal)	E23270-003	E23270-002	E23270-002	E23270-002	E23270-002
2, 3		Cosmetic Board					
		(Left)	ED92933-001	–	–	–	–
		(Right)	ED92933-002	–	–	–	–
2, 3		Screw	E65550-002	E61660-001	E61660-001	E61660-001	E61660-001
3, 4		Side Fitting (Left)	–	E300509-001	E300509-001	E300509-001	E300509-001
3, 4		Side Fitting (Right)	–	E300509-002	E300509-002	E300509-002	E300509-002
3, 15	8-(6)	AC Fuse & Outlets P.C. Board Ass'y ⚠	TPS-255B	–	–	–	–
13	8-(5)	Voltage Selector P.C. Board Ass'y ⚠	–	TPS-234B	TPS234B	TPS-234CBS	TPS-234A
3		Fuse Socket ⚠	–	QMG0301-003	QMG0301-003	QMG0301-003BS	QMG0301-003
3, 15		AC Outlets ⚠	QMC0637-003	–	–	–	QMC0637-003
3, 15		Voltage Selector ⚠	–	QSR0085-001	QSR0085-001	QSR0085-001BS	QSR0085-001
	F801	Fuse (Primary) ⚠	QMF61U1-4R0 (4.0A)	QMF51A2-2R0L (T2A)	QMF51A2-2R0L (T2A)	QMF51A2-2R0LBS (T2A)	QMF51A2-4R0S (T4A) or QMF51A2-2R0L (T2A)
	F802/ F803	Fuse (Secondary) ⚠	–	QMF51A2-6R3S (T6.3A)	QMF51A2-6R3S (T6.3A)	QMF51A2-6R3SBS (T6.3A)	–
10		Fuse Clip (Secondary) ⚠	–	E48965-002	E48965-002	E48965-002	–
10		Fuse Label	–	E67132-T6R3 (for T6.3A)	E67132-T6R3 (for T6.3A)	E67132-T6R3 (for T6.3A)	–
4		Power Transformer ⚠	E03077-48B	E03077-48C	E03077-48C	E03077-48CBS	E03077-48C
4		Power Switch ⚠	QSP1110-301	QSP2111-016	QSP2111-016	QSP2111-016BS	QSP2111-016
3, 4		Power Cord ⚠	QMP1200-200	QMP2560-244	QMP3900-200	QMP9017-008BS	QMP7600-250
3		Strain Relief ⚠	QHS3876-162	QHS3876-162	QHS3876-162	QHS3876-162BS	QHS3876-162
3, 4		Front Panel Ass'y	EFP-AX4J	EFP-AX4E	EFP-AX4E	EFP-AX4E	EFP-AX4E
3		Rear Panel	E23268-003	E23268-004	E23268-004	E23268-004	E23268-004
3		Masking Plate	–	E65494-001	E65494-001	E65494-001	–
4, 8	8-(2)	Power Amp. & Power Supply P.C. Board Ass'y	TXX-215E	TXX-215G	TXX-215G	TXX-215G	TXX-215F
4,13	8-(4)	Equalizer & Select Switch P.C. Board Ass'y	TXX-216D	TXX-216E	TXX-216E	TXX-216E	TXX-216E
10	R371/ R372	Resistor (Oxide Metal Film) ⚠	QRX017J-100S	QRZ0049-100 (Fuse Type)	QRZ0049-100 (Fuse Type)	QRZ0049-100 (Fuse Type)	QRX017J-100S
10	R375/ R376/ R377/ R378	Resistor (Carbon) ⚠	QRD149J-100S	QRZ0052-100 (Fuse Type)	QRZ0052-100 (Fuse Type)	QRZ0052-100 (Fuse Type)	QRD149J-100S

NOTE: ⚠ SAFETY PARTS

Power Specifications

Area	Line Voltage & Frequency	Power Consumption
U.S.A.	AC 120 V, 60 Hz	260 W
CANADA	AC 120 V, 60 Hz	335 VA
EUROPE, U.K. & AUSTRALIA	AC 110/120/220/240 V ~ Selectable, 50 Hz	480 W
OTHER AREAS	AC 110/120/220/240 V ~ Selectable, 50/60 Hz	480 W